The Post-Proceedings of the

U.S. Army Aviation and Missile Command 1997 Advance Planning Briefing For Industry

October 20-22, 1997

The Sparkman Center Auditorium
Redstone Arsenal, Alabama

DTIC QUALITY INSPECTED 2

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

Technical Report-RD-TI-01-97

19980115 200

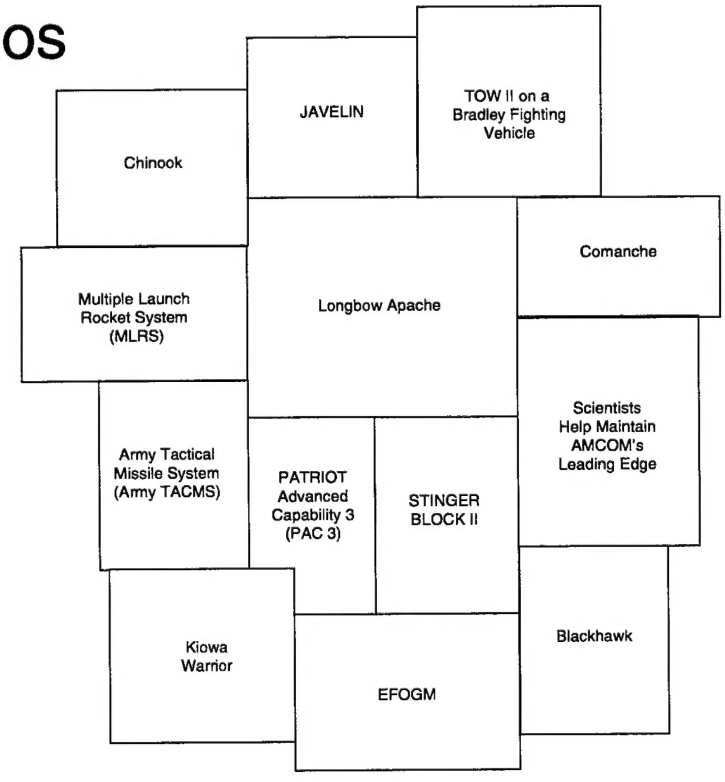
Cleared For Public Release
Distribution Is Unlimited

Preface

This Post-Proceedings document contains revisions / additions to the original APBI Proceedings document distributed at the APBI on 20-22 October 1997

Table of Contents

Cover Photos



1997 APBI AGENDA

U.S. ARMY AVIATION & MISSILE COMMAND

ADVANCE PLANNING BRIEFING FOR INDUSTRY

MONDAY, OCTOBER 20, 1997

1300 - 1600 **EARLY REGISTRATION - SPARKMAN AUDITORIUM (Bldg. 5304)**

TUESDAY, OCTOBER 21, 1997

0730 - **Registration - Sparkman Center Auditorium (Bldg. 5304)**

0815 - **Administrative Announcements**
Ms. Tammy S. Williams, Acting Technical Industrial Liaison, Technology Integration Office, Missile Research, Development, and Engineering (MRD&E) Center, U.S. Army Aviation & Missile Command (USAAMCOM)

0820 - **Welcome**
MG Emmitt E. Gibson, Commanding General, USAAMCOM

0835 - **U.S. Army Aviation & Missile Command Overview**
Mr. John M. Moore, Resource Management Directorate

0905 - **BREAK**

0930 - **Deputy for Systems Acquisition**
BG Robert E. Armbruster, Deputy for Systems Acquisition

1015 - **Program Executive Office for Tactical Missiles (PEO-TM)**
Ms. Vicky L. Armbruster, Deputy Program Executive Officer, Tactical Missiles

1100 - **Program Executive Office for Air & Missile Defense (PEO-AMD)**
Mr. A. Q. Oldacre, Deputy Program Executive Officer, Air and Missile Defense

1145 - **LUNCH at the Redstone Officers' Club**
Dr. Michael Andrews, Director for Technology Office of the Assistant Secretary of the Army Research, Development, and Acquisition

1345 **Program Executive Office for Aviation**
Mr. Paul Bogosian, Deputy Program Executive Officer, Aviation

1415 - **TRADOC Keynote Address**
COL Mark P. Gay, Director, Future Battle Directorate, U.S. Army Training and Doctrine Command

1500 - **BREAK**

1530 - **Missile RD&E Center Vision and Strategic Plan**
Dr. William C. McCorkle, Technical Director for Missiles, USAAMCOM and Executive Director Missile RD&E Center

1615 - **Aviation RD&E Center Vision and Strategic Plan**
Mr. Tom L. House, Technical Director for Aviation,
USAAMCOM and Executive Director Aviation RD&E Center

1700 - **Question and Answer Session**
MG Emmitt E. Gibson, Commanding General, USAAMCOM

1800 - **Reception - Redstone Arsenal Officers' Club**

WEDNESDAY, OCTOBER 22, 1997

0800 - **Announcements**
Ms. Tammy S. Williams, Acting Technical Industrial Liaison,
Technology Integration Office, Missile RD&E Center

0805 **Missile RD&E Center Opportunities**
Dr. Paul L. Jacobs, Associate Director for Technology,
Missile RD&E Center

0845 **Aviation RD&E Center Contract Opportunities**
Mr. Robert V. Kennedy, Associate Director for Technology,
Aviation RD&E Center

0930 - **BREAK**

1000 - **Integrated Materiel Management Center (IMMC)**
Richard Turner
IMMC

1015 - **Redstone Technical Test Center (RTTC)**
Test and Evaluation Command
Ms. Sharon A. Mueller-Myers, Contracts Specialist, RTTC

1035 - **Instrumentation, Targets, and Threat Simulators (ITTS)**
Mr. Henry I. Jehan, Jr. ITTS, U.S. Army Simulation, Training,
and Instrumentation Command

1100 - **Redstone Arsenal Support Activity (RASA)**
COL Duane E. Brandt, Commander, RASA

1115 - **Resource Management Directorate**
Mr. William G. Matthews, Deputy Director,
AMCOM Resource Management Directorate

1135 - **Air Defense Command and Control Systems (ADCCS)**
LTC James M. Althouse, Project Manager, ADCCS

1150 - **LUNCH at the Redstone Officers' Club**
Mr. Laurence H. Burger, Director, U.S. Army Space and
Missile Defense Command's Space and Missile Battle Lab

1340 - **Acquisition Review**
Ms. L. Marlene Cruze, Director,
AMCOM Acquisition Center

1400 - **Legislative Initiatives**
AMCOM Legal Office

1420 - **BREAK**

1450- **Command Ombudsman**
Mr. John W. Finafrock, AMCOM Ombudsman

1510 - **Small Business Office**
Mr. John F. Nelson, Small Business Advocate,
Small and Disadvantaged Business Utilization Office

1530 - **Question and Answer Session**
Dr. William C. McCorkle, Technical Director for Missiles,
USAAMCOM, and Executive Director Missile RD&E Center

Welcome
MG Emmitt E. Gibson
Commanding General, USAAMCOM

1997 Advance Planning Briefing for Industry

U. S. Army Aviation and Missile Command

MG Emmitt E. Gibson

Commanding General

U. S. Army
Aviation and Missile Command
Redstone Arsenal, Alabama

1997 Advance Planning Briefing for Industry

BRAC 95 THE DECISION

8 SEP 95 - BRAC List Approved by Congress

"Disestablish Aviation-Troop Command (ATCOM), vacate its leased facilities, and relocate its missions/functions:

Align troop support function with SSCOM CECOM TACOM

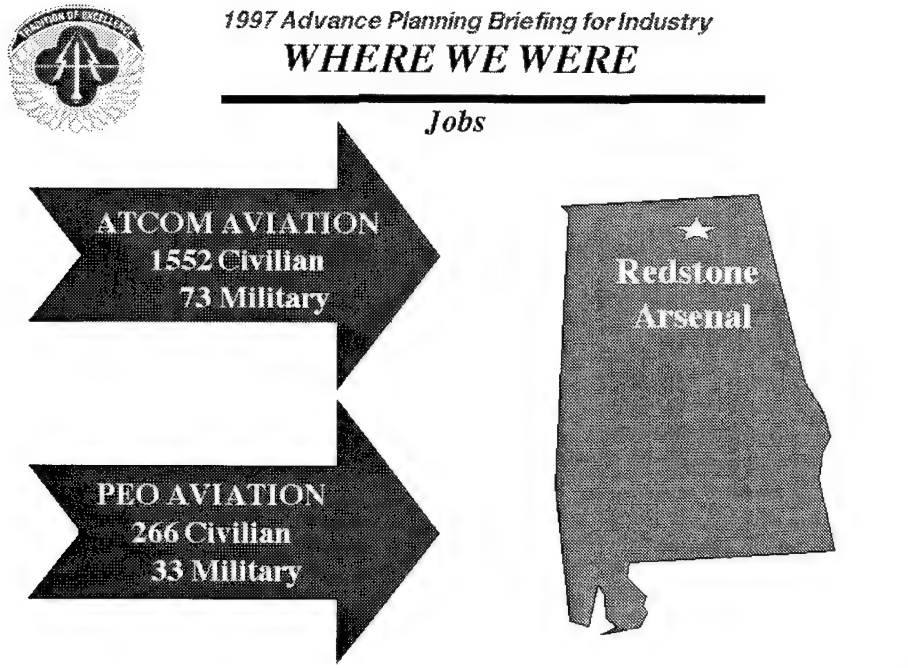
1) Relocate Aviation RDEC, Aviation Management, and Aviation Program Executive Office (PEO) structure to Redstone Arsenal, Huntsville, AL to form the Aviation and Missile Command

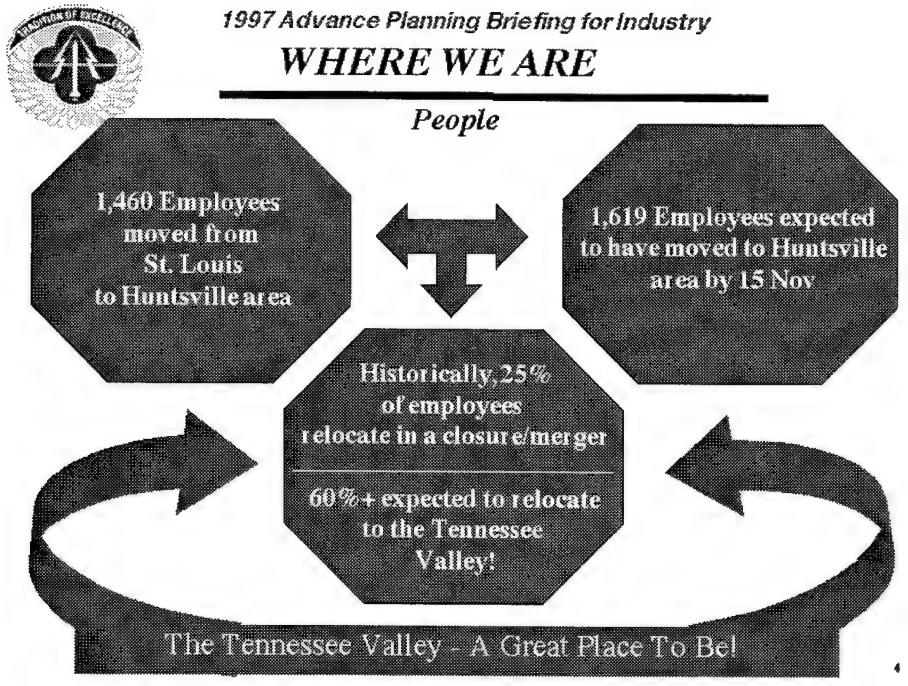
2) Relocate functions related to soldier system to Natick RDEC, MA, to align with Soldier Systems Command (SSCOM)

3) Relocate functions related to materiel management of Communications-Electronics to Ft. Monmouth, NJ to align with the Communications Electronics Command (CECOM)

4) Relocate functions related to materiel management of automotive to Detroit Arsenal to align with Tank-Auto & Arm Command (TACOM)"

2


1997 Advance Planning Briefing for Industry
WHERE WE WERE
Jobs
ATCOM AVIATION
1552 Civilian
73 Military
PEO AVIATION
266 Civilian
33 Military
Redstone
Arsenal
3


1997 Advance Planning Briefing for Industry
WHERE WE ARE
People
1,460 Employees
moved from
St. Louis
to Huntsville area
1,619 Employees expected
to have moved to Huntsville
area by 15 Nov
Historically, 25%
of employees
relocate in a closure/merger
60%+ expected to relocate
to the Tennessee
Valley!
The Tennessee Valley - A Great Place To Be!
4

1997 Advance Planning Briefing for Industry

A HUNTSVILLE WELCOME!

6

1997 Advance Planning Briefing for Industry

THE AMCOM VISION

- **The Army's 21st Century leader in equipping and sustaining technologically dominant aviation and missile systems.**
- A total force of quality soldiers and civilians dedicated to:
  - » A flexible environment where people achieve full potential
  - » Consistently exceeding customers' expectations
  - » Teaming with our customers, industry, and the community
  - » Providing world class support to our ultimate customer -- the soldier

6

AMCOM MISSION

Develop, acquire, field, and sustain aviation and missile systems -- united with program managers, industry, and other partners -- to guarantee the Army's technological superiority on the battlefield.

7

SUPPORTING AMERICA'S SOLDIERS

AMCOM!

Our Mission Is To Provide the Soldier With:

→Leading Edge Technology

Army Aviation and Missilery Remains at the Forefront of Innovation, Change, and Technological Overmatch in Response to the Challenges of Force XXI, Vision 2010 and Army After Next. Today's Modernization is Tomorrow's Readiness.

→Parts To The User

- The Right Part
  - In The Right Place
    - At The Right Time
      - In The Right Quantity
        - At a Reasonable Price

Aviation - Missiles
TMDE

8

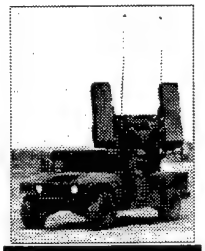
1997 Advance Planning Briefing for Industry

MISSILE EQUIPMENT SUPPORTED BY AMCOM

MLRS - 513

TOW 2 HMMWV - 789

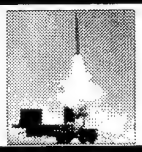
FORCE MOD	1928
NON-FORCE MOD	6379
TOTAL	8307



AVENGER - 576

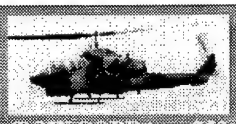
DRAGON - 4290

MMS - 222



PATRIOT FB - 50

HELLFIRE - 557



TOW COBRA	353
FISTV	702
G/VLLD	180
PATRIOT CC	10
LSDIS	32
BSTF	33

9

1997 Advance Planning Briefing for Industry

AVIATION EQUIPMENT SUPPORTED BY AMCOM

FORCE MOD	2877
NON-FORCE MOD	2360
FIXED WING	255
SOA	142
TOTAL	5634

431 - CH-47D

587 - OH-58A/C

60 - MH-60

35 - MH-47

47 - MH/AH/OH-6

272 - OH-58D

1416 - UH-60

758 - AH-64

480 - AH-1

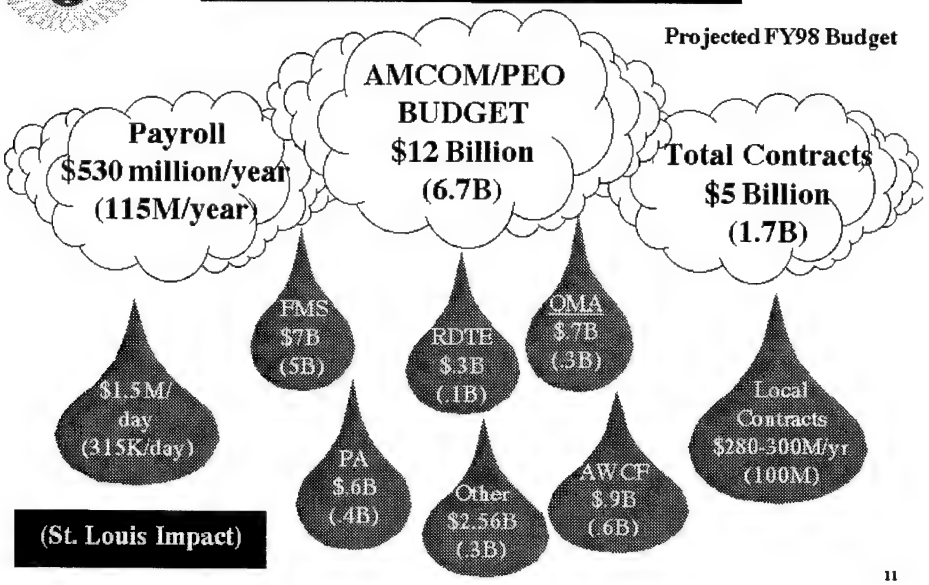
RAH-66
PROTOTYPE

255 - FIXED WING

10

1997 Advance Planning Briefing for Industry

ECONOMIC IMPACT

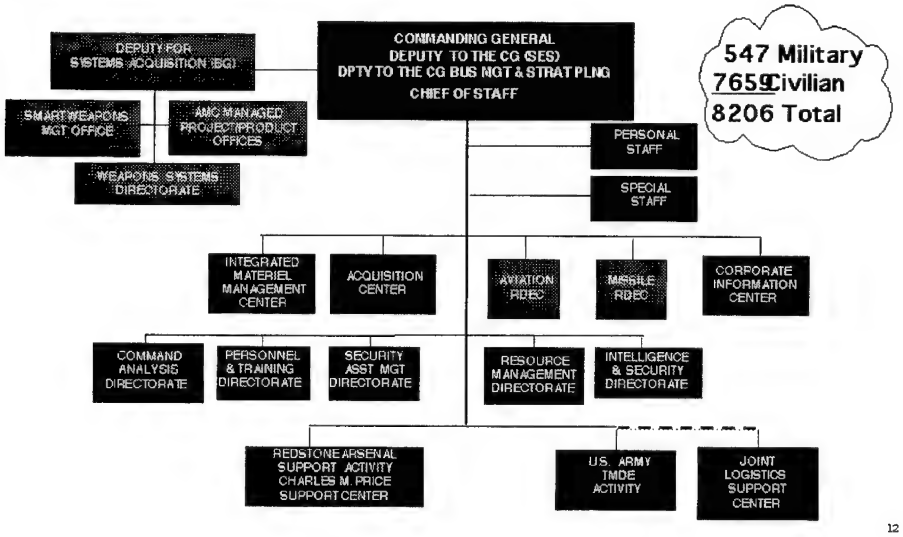


11

1997 Advance Planning Briefing for Industry

AMCOM

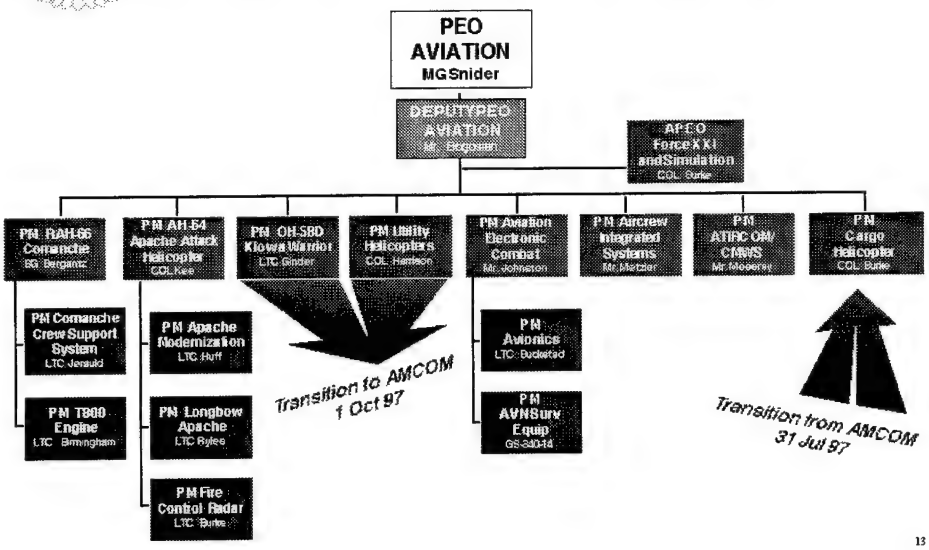
Redstone Arsenal, AL



12

1997 Advance Planning Briefing for Industry

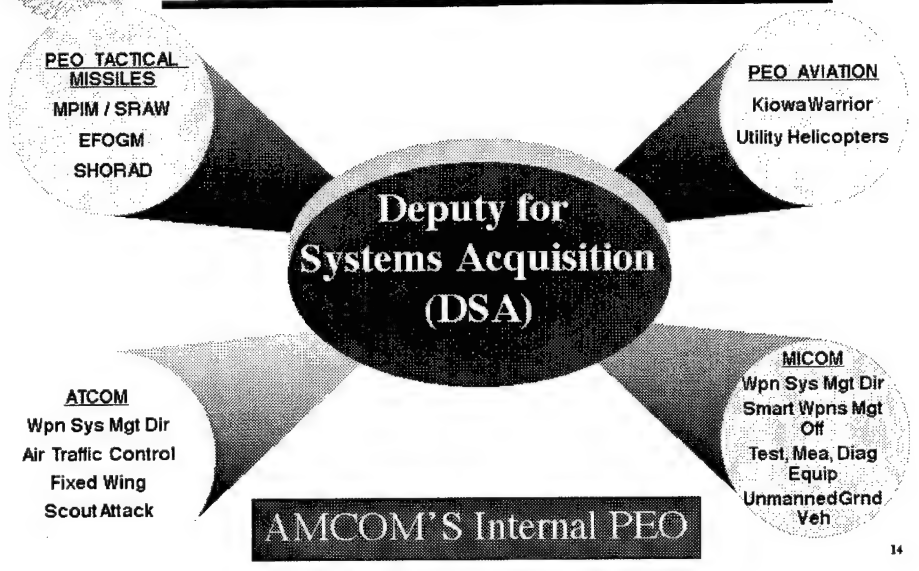
PEO AVIATION



13

1997 Advance Planning Briefing for Industry

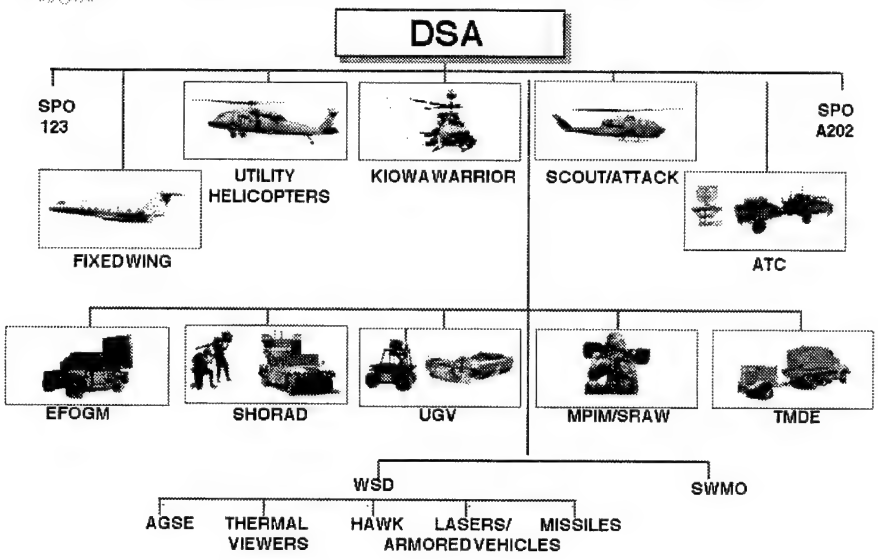
CONSOLIDATING AMCOM'S PRODUCT & PROJECT OFFICES



14

1997 Advance Planning Briefing for Industry

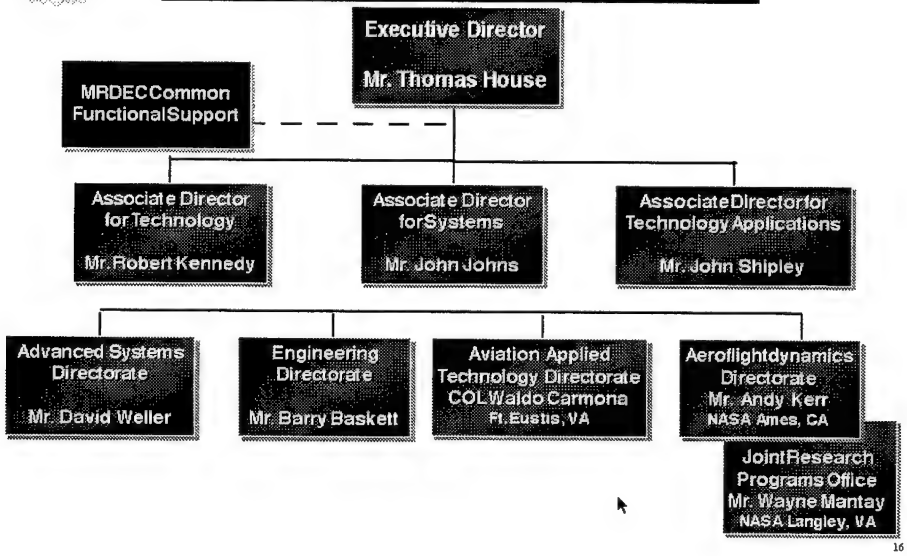
DSA ORGANIZATION



15

1997 Advance Planning Briefing for Industry

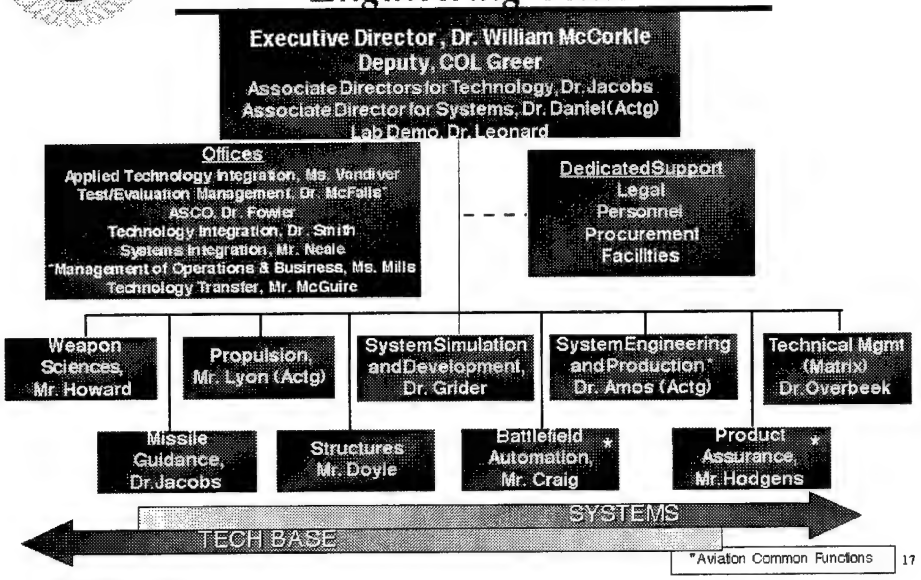
Aviation Research, Development and Engineering Center



16

1997 Advance Planning Briefing for Industry

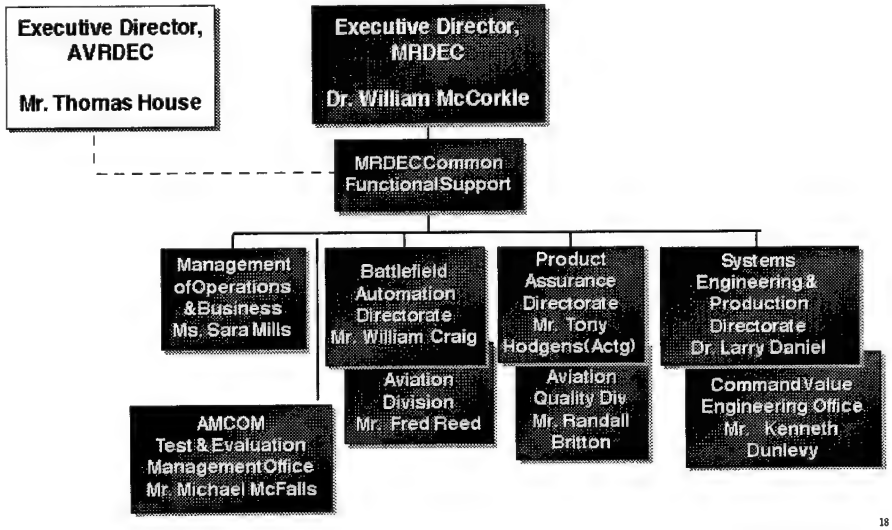
Missile Research, Development, & Engineering Center



17

1997 Advance Planning Briefing for Industry

MRDEC Common Functional Support to the AVRDEC



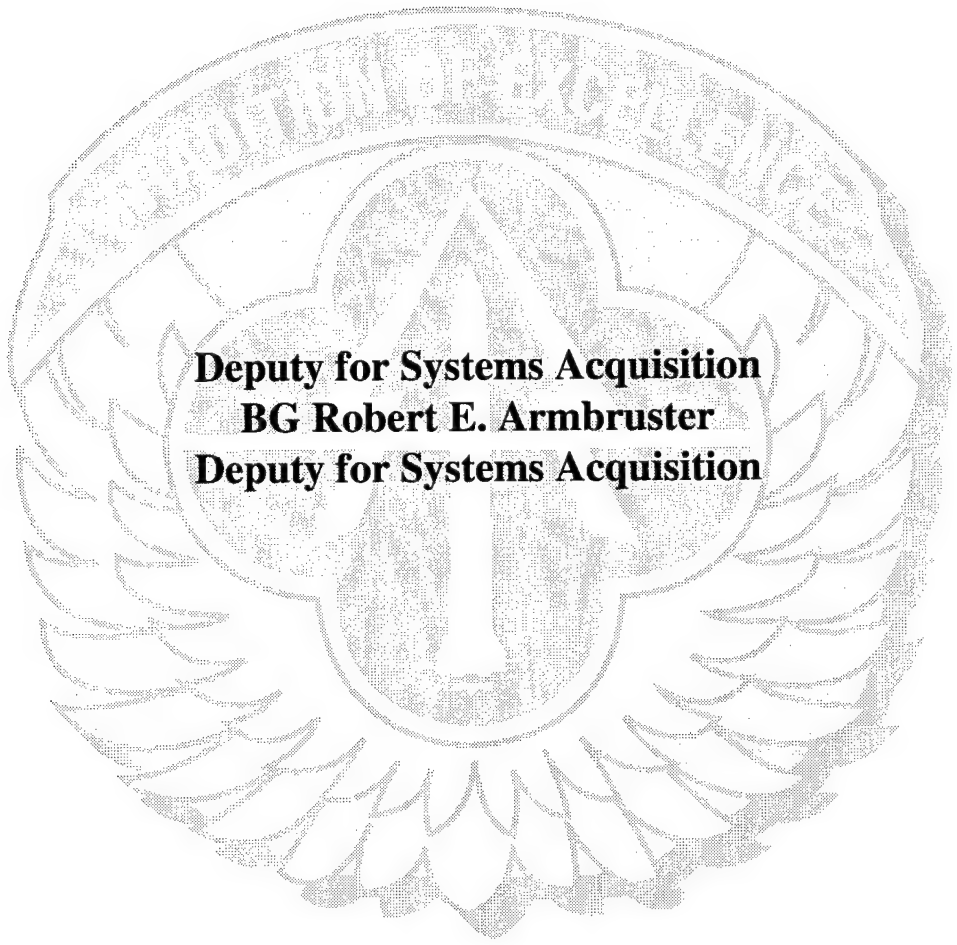
18

1997 Advance Planning Briefing for Industry

Presentation Schedule

U.S. Army Aviation & Missile Command Overview
Deputy for Systems Acquisition
Program Executive Office for Tactical Missiles (PEO-TM)
Program Executive Office for Air & Missile Defense (PEO-AMD)
Program Executive Office for Aviation
TRADOC Keynote Address
Missile RD&E Center Vision and Strategic Plan
Aviation RD&E Center Vision and Strategic Plan
Missile RD&E Center Contract Opportunities
Aviation RD&E Center Contract Opportunities
Integrated Materiel Management Center (IMMC)
Redstone Technical Test Center (RTTC)
Instrumentation, Targets, and Threat Simulators (ITTS)
Redstone Arsenal Support Activity (RASA)
Resource Management Directorate
Air Defense Command and Control Systems (ADCCS)
Acquisition Review
Legislative Initiatives
Command Ombudsman
Small Business Office

19

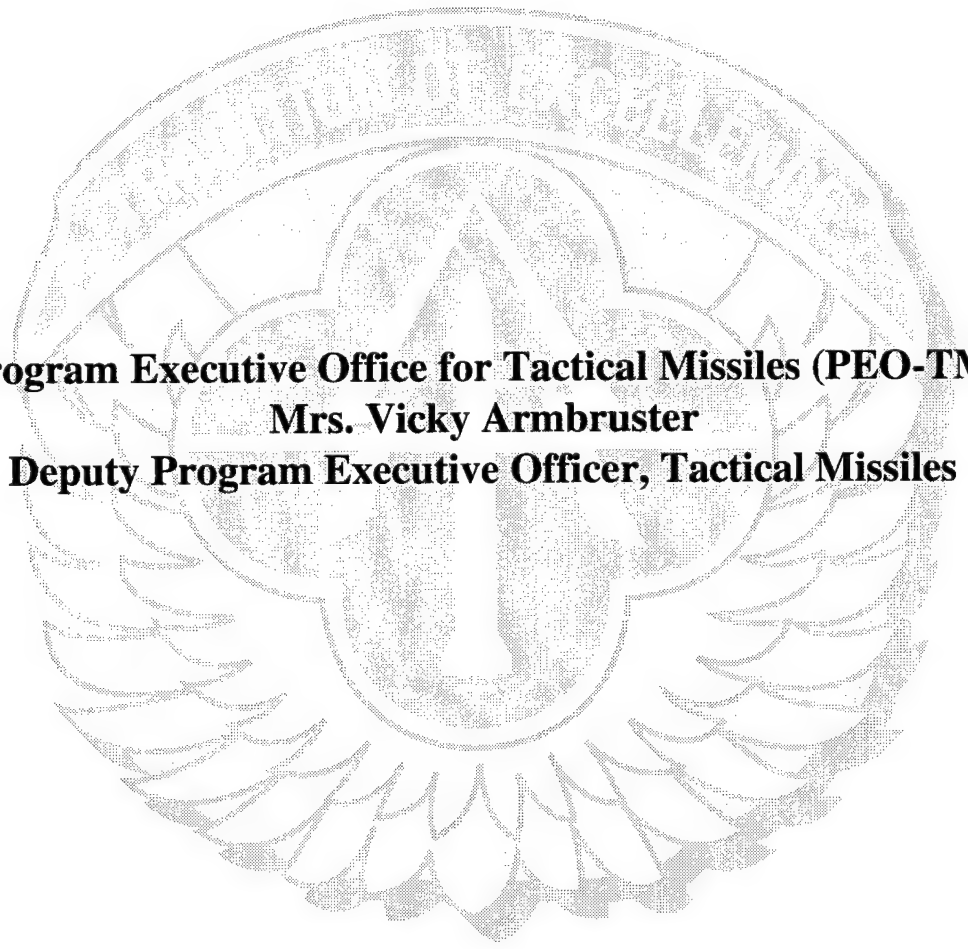


Deputy for Systems Acquisition
BG Robert E. Armbruster
Deputy for Systems Acquisition

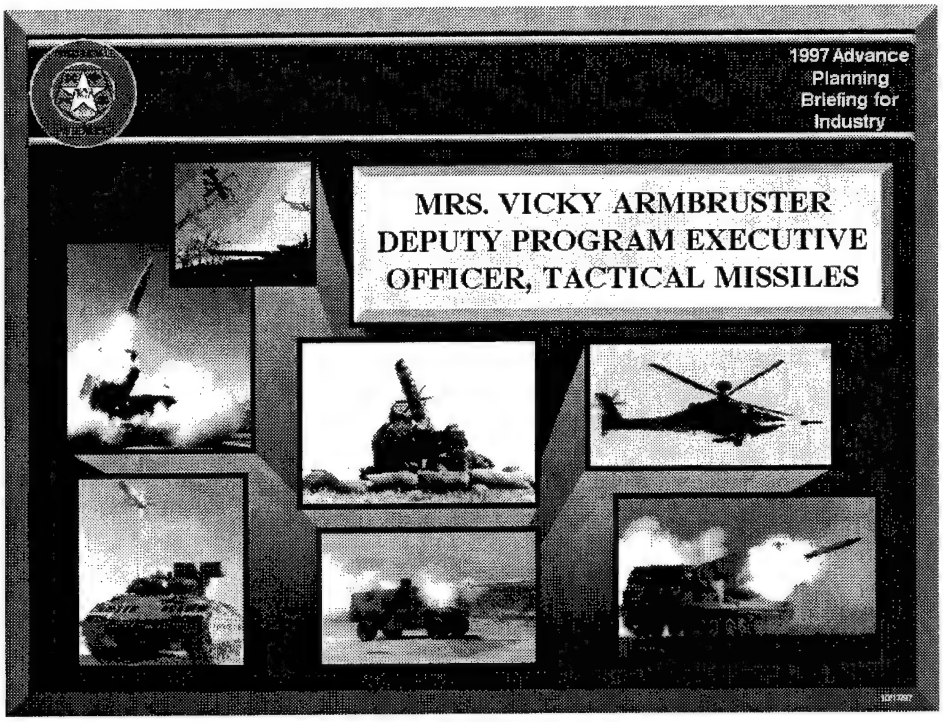
1997 ADVANCE PLANNING BRIEFING FOR INDUSTRY

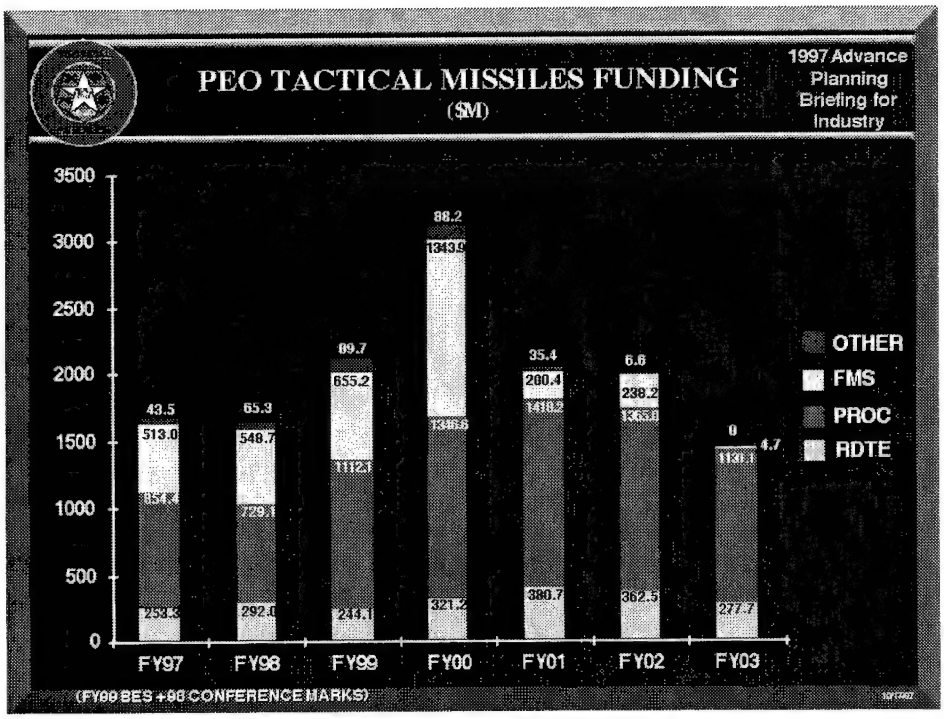
OCTOBER 1997

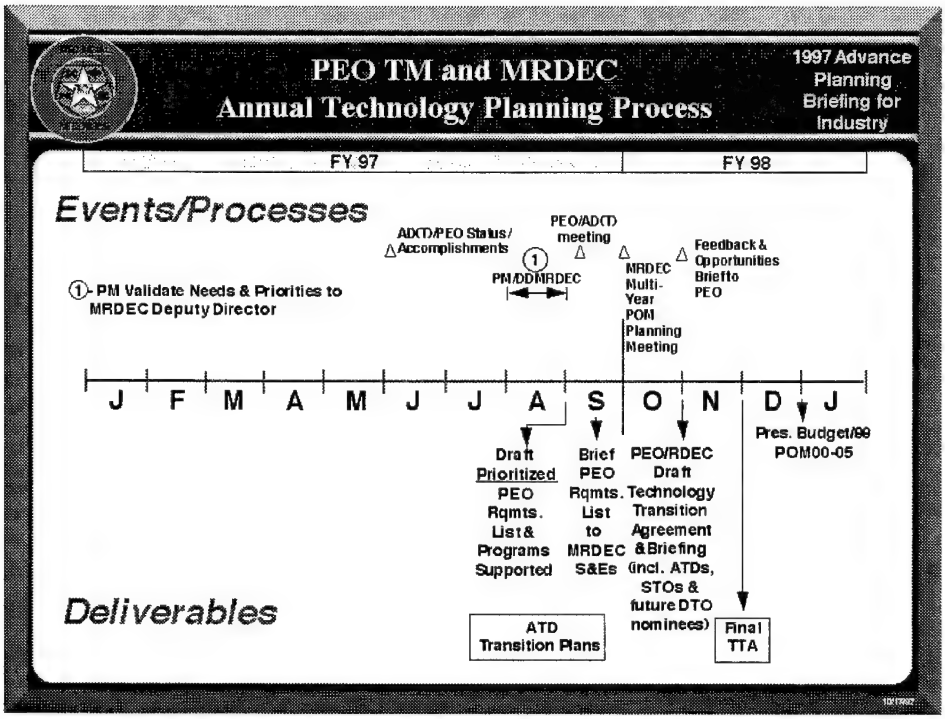
BG ROBERT E. ARMBRUSTER

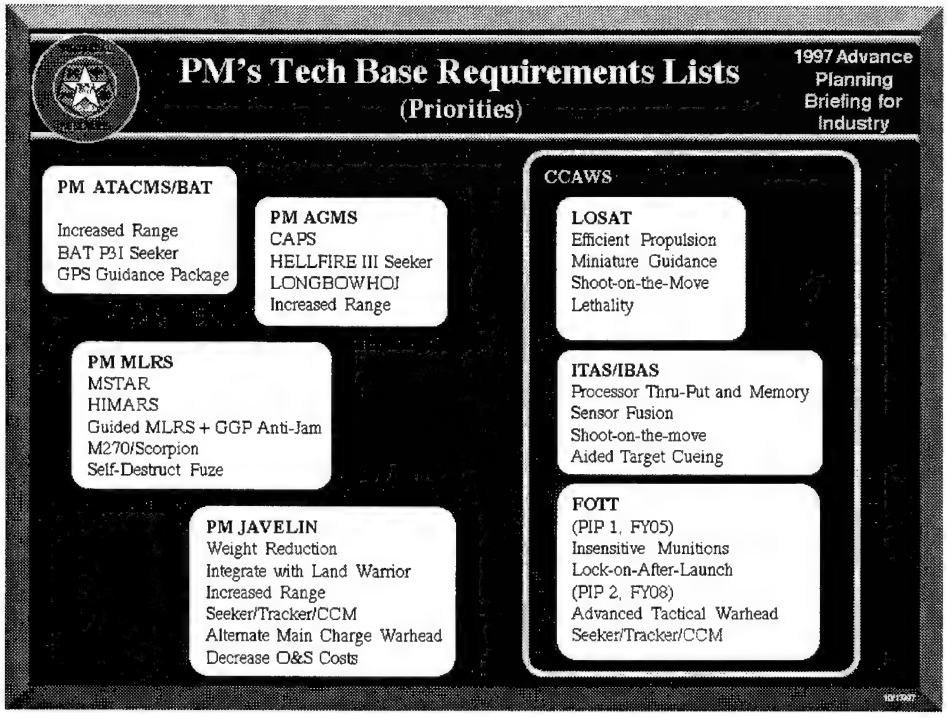


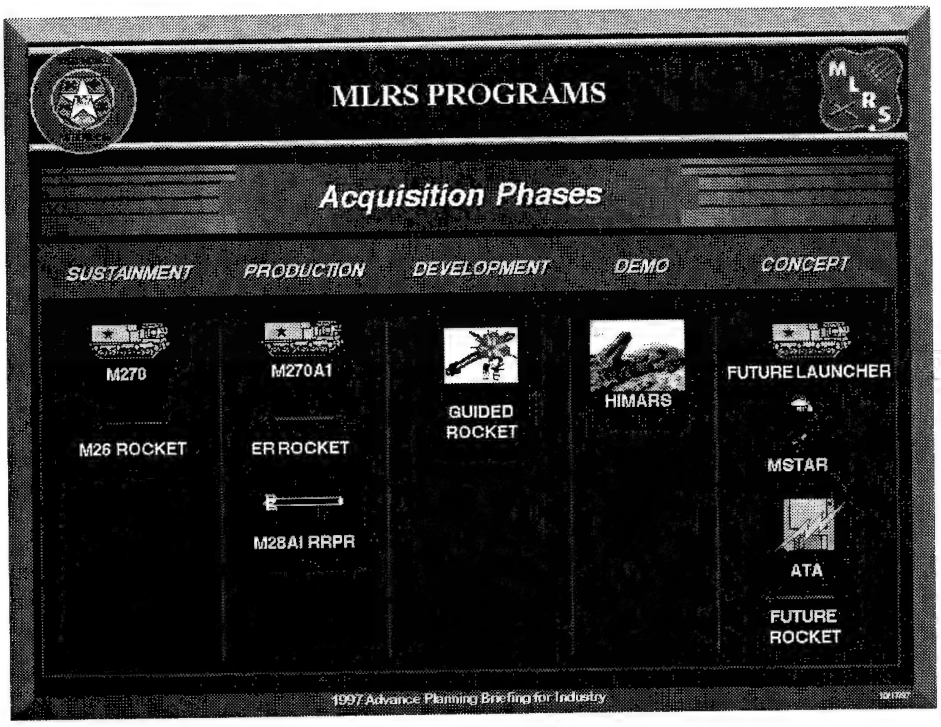
Program Executive Office for Tactical Missiles (PEO-TM)
Mrs. Vicky Armbruster
Deputy Program Executive Officer, Tactical Missiles

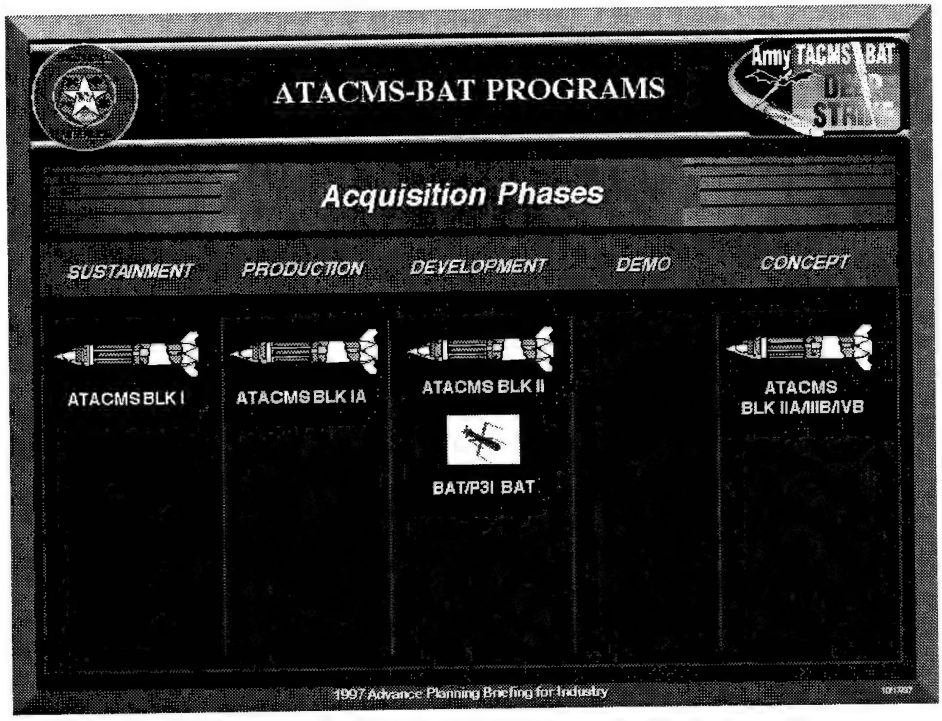

1997 Advance Planning Briefing for Industry
MRS. VICKY ARMBRUSTER
DEPUTY PROGRAM EXECUTIVE OFFICER, TACTICAL MISSILES

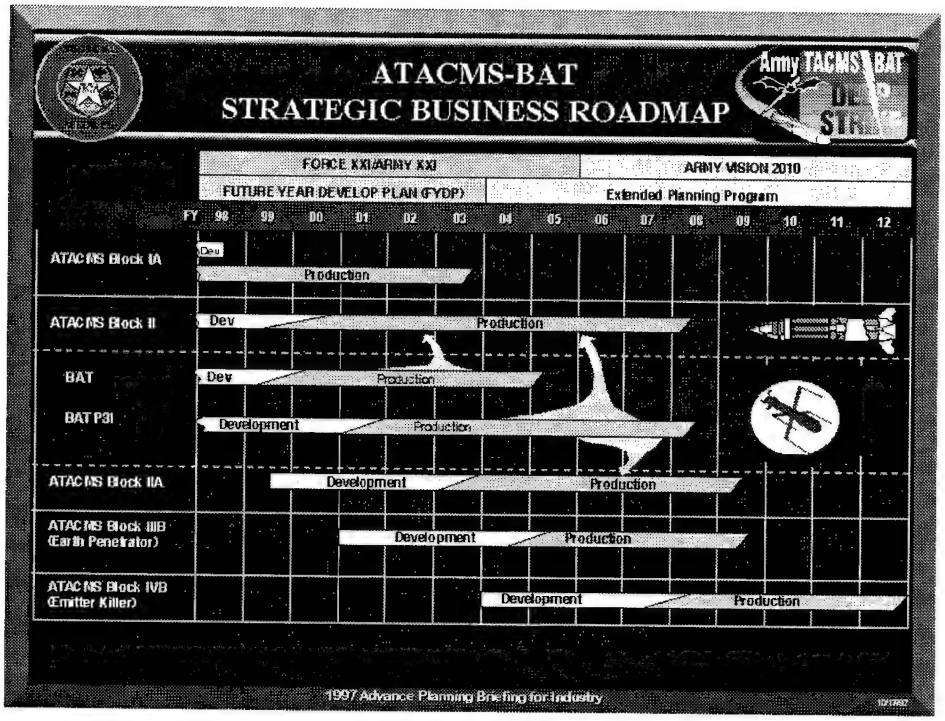

PEO TACTICAL MISSILES FUNDING
($M)
1997 Advance Planning Briefing for Industry
3500
3000
2500
2000
1500
1000
500
0
43.5
513.0
65.3
548.7
89.7
655.2
88.2
1343.9
35.4
280.4
6.6
238.2
0
4.7
130.1
729.1
1112.1
380.7
362.5
277.7
OTHER
FMS
PROC
RDTE
FY97
FY98
FY99
FY00
FY01
FY02
FY03
(FY99 BES +98 CONFERENCE MARKS)

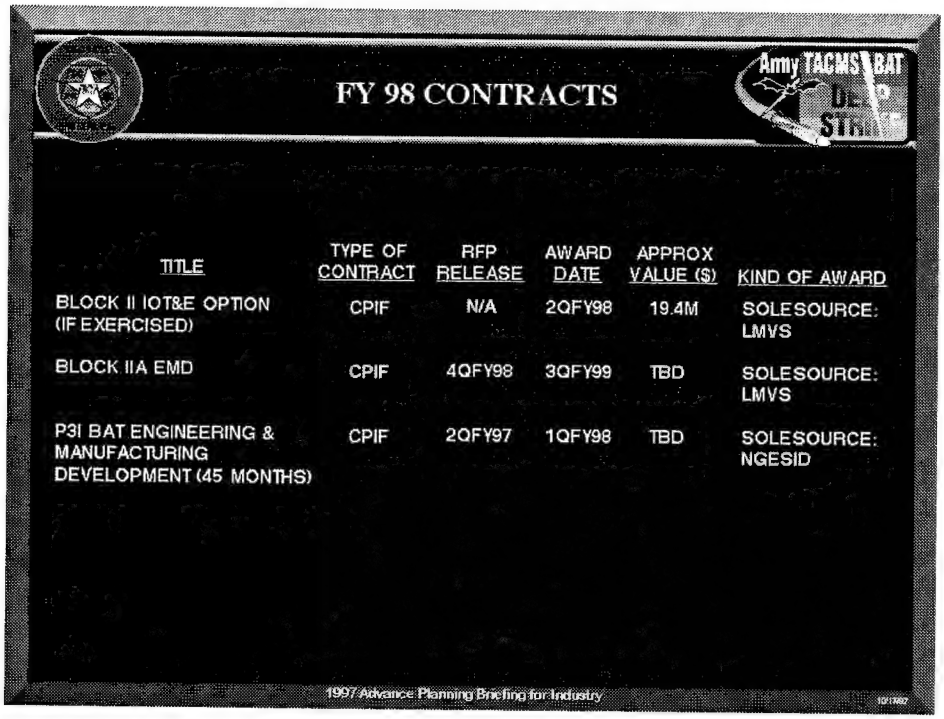

PEO TM and MRDEC
Annual Technology Planning Process
1997 Advance Planning Briefing for Industry
FY 97
FY 98
Events/Processes
ADCT/PEO Status / Accomplishments
PEO/ADCT meeting
Feedback & Opportunities Brief to PEO
PM/DD MRDEC
MRDEC Multi-Year POM Planning Meeting
① PM Validate Needs & Priorities to MRDEC Deputy Director
J F M A M J J A S O N D J
Pres. Budget/99 POM00-05
Draft Prioritized PEO Rqmts. List & Programs Supported
Brief PEO Rqmts. List to MRDEC S&Es
PEO/RDEC Draft Technology Transition Agreement & Briefing (incl. ATDs, STOs & future DTO nominees)
Deliverables
ATD Transition Plans
Final TTA


PM's Tech Base Requirements Lists
(Priorities)
1997 Advance Planning Briefing for Industry
PM ATACMS/BAT
Increased Range
BAT P3I Seeker
GPS Guidance Package
PM AGMS
CAPS
HELLFIRE III Seeker
LONGBOWHOJ
Increased Range
PM MLRS
MSTAR
HIMARS
Guided MLRS + GGP Anti-Jam
M270/Scorpion
Self-Destruct Fuze
PM JAVELIN
Weight Reduction
Integrate with Land Warrior
Increased Range
Seeker/Tracker/CCM
Alternate Main Charge Warhead
Decrease O&S Costs
CCAWS
LOSAT
Efficient Propulsion
Miniature Guidance
Shoot-on-the-Move
Lethality
ITAS/IBAS
Processor Thru-Put and Memory
Sensor Fusion
Shoot-on-the-move
Aided Target Cueing
FOTT
(PIP 1, FY05)
Insensitive Munitions
Lock-on-After-Launch
(PIP 2, FY08)
Advanced Tactical Warhead
Seeker/Tracker/CCM

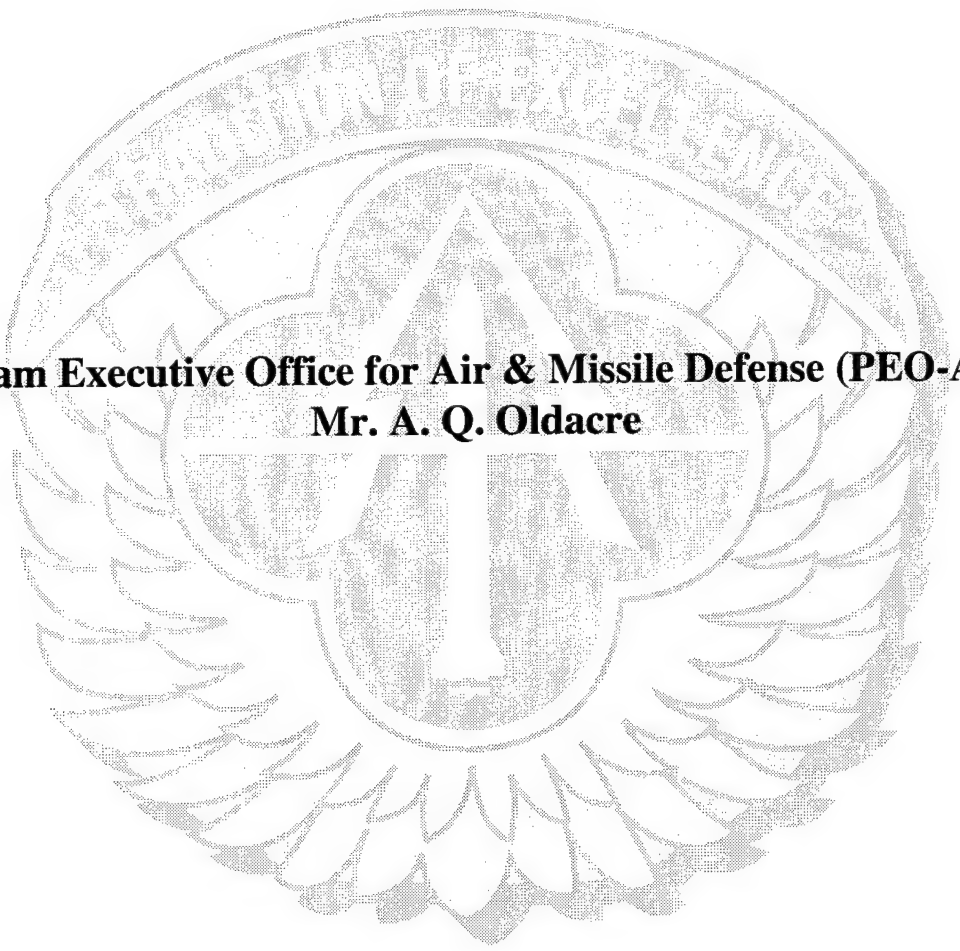

MLRS PROGRAMS
Acquisition Phases
SUSTAINMENT
PRODUCTION
DEVELOPMENT
DEMO
CONCEPT
M270
M270A1
GUIDED ROCKET
HIMARS
FUTURE LAUNCHER
M26 ROCKET
ER ROCKET
MSTAR
M28A1 RRPR
ATA
FUTURE ROCKET
1997 Advance Planning Briefing for Industry


ATACMS-BAT PROGRAMS
Army TACMS BAT
Acquisition Phases
SUSTAINMENT
PRODUCTION
DEVELOPMENT
DEMO
CONCEPT
ATACMS BLK I
ATACMS BLK IA
ATACMS BLK II
ATACMS BLK IIA/IIB/IVB
BAT/P3I BAT
1997 Advance Planning Briefing for Industry





TITLE	TYPE OF CONTRACT	RFP RELEASE	AWARD DATE	APPROX VALUE ($)	KIND OF AWARD
BLOCK II IOT&E OPTION (IF EXERCISED)	CPIF	N/A	2QFY98	19.4M	SOLESOURCE: LMVS
BLOCK IIA EMD	CPIF	4QFY98	3QFY99	TBD	SOLESOURCE: LMVS
P3I BAT ENGINEERING & MANUFACTURING DEVELOPMENT (45 MONTHS)	CPIF	2QFY97	1QFY98	TBD	SOLESOURCE: NGESID



Program Executive Office for Air & Missile Defense (PEO-AMD)
Mr. A. Q. Oldacre

UNCLASSIFIED

1997
ADVANCE PLANNING BRIEFING FOR INDUSTRY

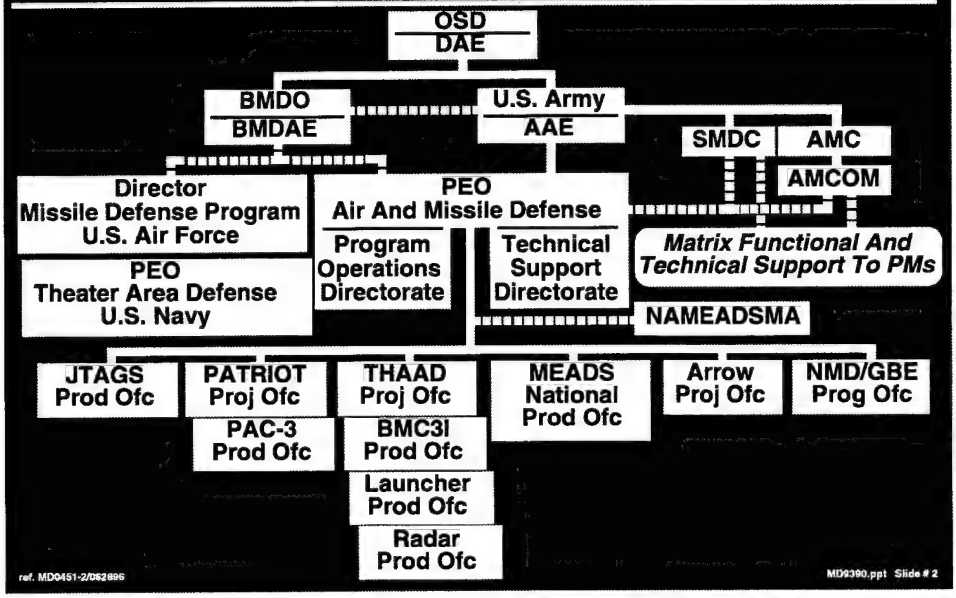
U.S. ARMY
AIR AND MISSILE DEFENSE
PROGRAM EXECUTIVE OFFICE

PRESENTED BY
MR. A.Q. OLDACRE
PROGRAM EXECUTIVE OFFICE AIR AND MISSILE DEFENSE

UNCLASSIFIED

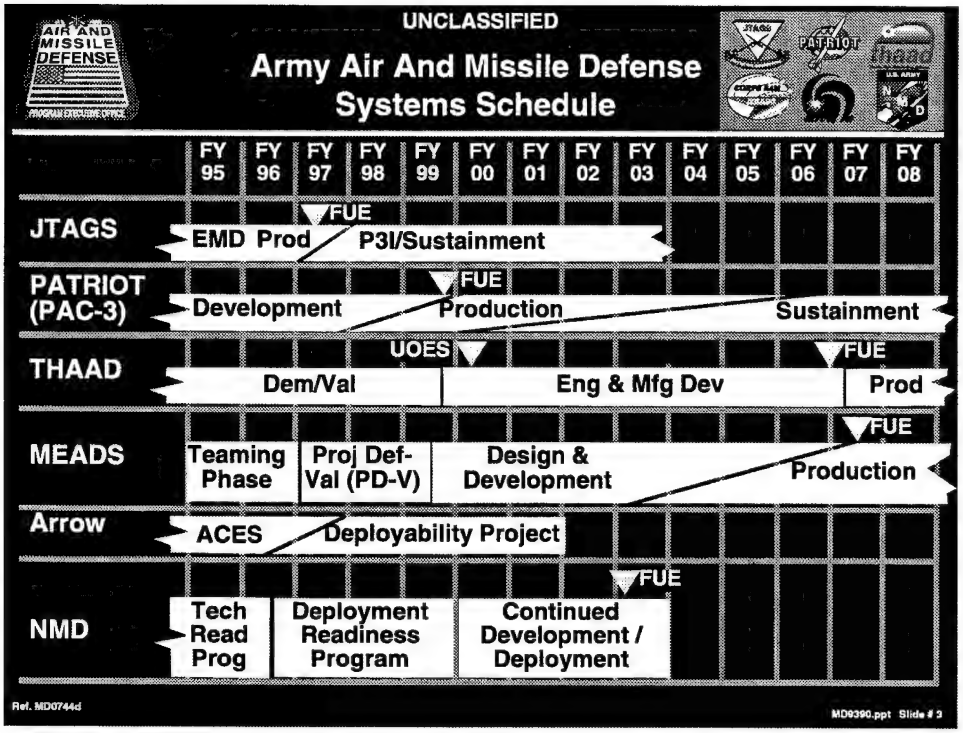
UNCLASSIFIED

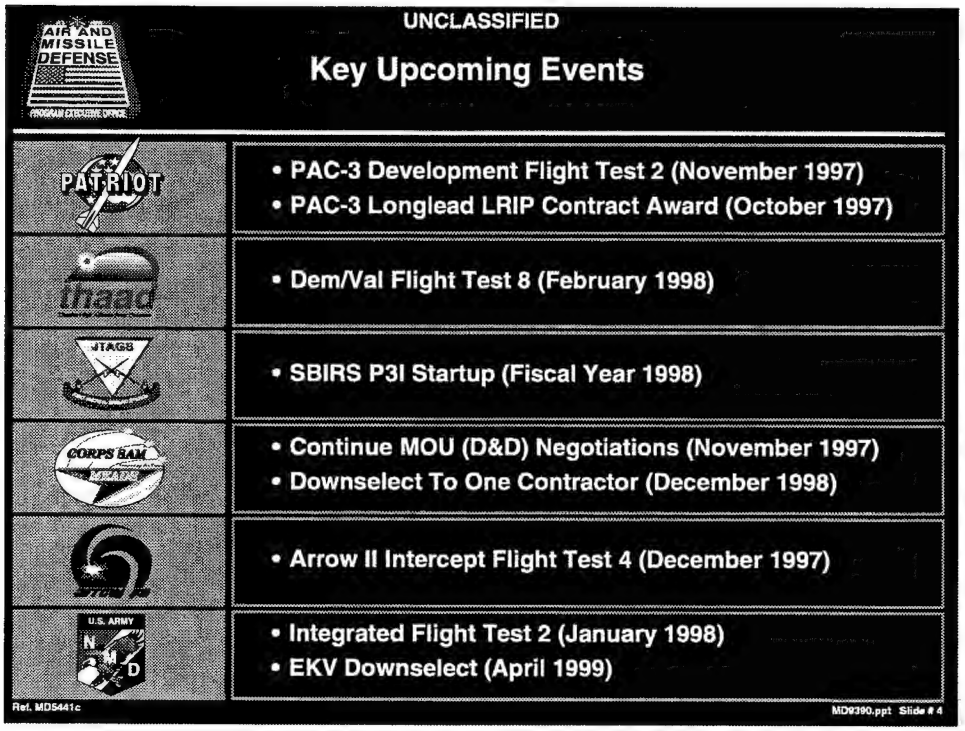
Army Air And Missile Defense Acquisition Management Structure



ref. MD0451-2/062896

MD9390.ppt Slide # 2


UNCLASSIFIED
Army Air And Missile Defense Systems Schedule
FY 95
FY 96
FY 97
FY 98
FY 99
FY 00
FY 01
FY 02
FY 03
FY 04
FY 05
FY 06
FY 07
FY 08
JTAGS
FUE
EMD Prod
P3I/Sustainment
PATRIOT (PAC-3)
FUE
Development
Production
Sustainment
THAAD
UOES
FUE
Dem/Val
Eng & Mfg Dev
Prod
MEADS
FUE
Teaming Phase
Proj Def-Val (PD-V)
Design & Development
Production
Arrow
ACES
Deployability Project
NMD
FUE
Tech Read Prog
Deployment Readiness Program
Continued Development / Deployment
Ref. MD0744d
MD0390.ppt Slide # 3


UNCLASSIFIED
Key Upcoming Events
• PAC-3 Development Flight Test 2 (November 1997)
• PAC-3 Longlead LRIP Contract Award (October 1997)
• Dem/Val Flight Test 8 (February 1998)
• SBIRS P3I Startup (Fiscal Year 1998)
• Continue MOU (D&D) Negotiations (November 1997)
• Downselect To One Contractor (December 1998)
• Arrow II Intercept Flight Test 4 (December 1997)
• Integrated Flight Test 2 (January 1998)
• EKV Downselect (April 1999)
Ref. MD5441c
MD0390.ppt Slide # 4

UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
Low Voltage Power Supply (LVPS) High Density Module

Estimated Value
$500K–$1M

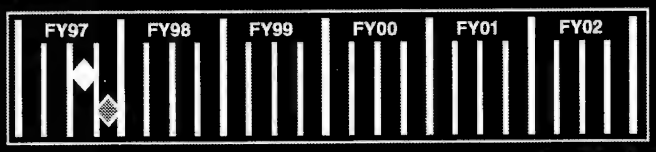
Contract Point Of Contact
Valeta Crandall (205-876-1109)
Vern Chance (205-955-3654)

Contract Type
FFP

Kind Of Award
Competitive - Full And Open

Program Description
Development, Fabrication, Initial Testing, Delivery, And System Test Support For The Redesign And Prove-Out Of Low Voltage Power Supplies For PATRIOT.

- Issue Draft RFP
- Issue Solicitation
- Contract Award



UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
Anti-Cruise Missile (ACM)

Estimated Value
$8M–$11M

Contract Point Of Contact
Valeta Crandall (205-876-1109)
Richard Brown (205-955-3806)

Contract Type
CPIF

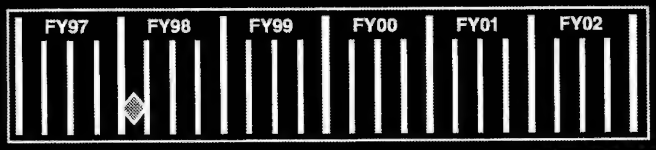
Kind Of Award
Sole Source

Program Description
Option Exercise For ACM Critical Materials For Test Support Which Are Necessary For Phase III (Test Phase) Of The Program

Contractor
Raytheon Company

Contractor Point Of Contact
Bob De Rosa (617-274-2898)

- Issue Draft RFP
- Issue Solicitation
- Contract Award



UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
PAC-3 Missile Low Rate Initial Production (LRIP)

Estimated Value
$120M–$130M

Contract Point Of Contact
Valeta Crandall (205-876-1109)
Larry Easterwood (205-955-3577)

Contract Type
FFP

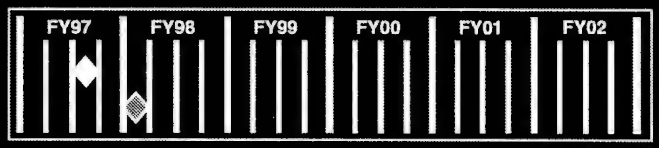
Kind Of Award
Sole Source

Program Description
LRIP Of 52 PAC-3 Missiles, 11 Enhanced Launcher Electronic Systems (ELESs), and 9 Fire Solution Computers (FSCs)

Contractor
Lockheed-Martin Vought Systems

Contractor Point Of Contact
Charlie Simpson (972-603-2807)

- ▲ Issue Draft RFP
- ◆ Issue Solicitation
- ◈ Contract Award

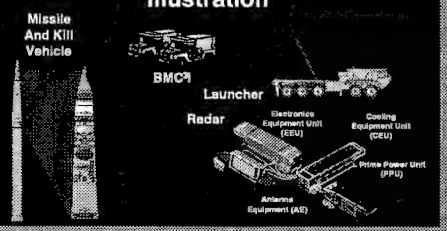


MD0390.ppt Slide # 7

UNCLASSIFIED

Theater High Altitude Area Defense (THAAD) System

Illustration



Objective

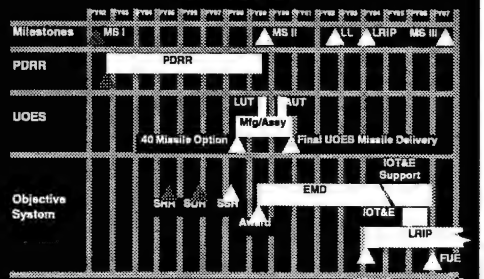
- Provide Aerial Defense Against Short and Medium Range Ballistic Missiles
- Employ Hit-To-Kill Technology
- Capable Of Both Endo- And Exo-Atmospheric Intercepts
- Constitute Upper Tier Of Two Tiered TBM Defense
- Field Two Battalions

Status

- Currently In PDRR Flight/System Test Phase
  - 7 Flights Conducted
  - System Is Fully Integrated
- UOES Delivered - Less Missiles
- Cause Of Flight Test 7 Failure - Contaminant Introduced By Shorting Plug
- Next Flight Test - February 1998
  - 2+4 Approach
- Milestone II - FY99
- Current Program - FUE FY06
- Focus On Component Reliability And Improved End-To-End Ground Testing Of Missile

Ref. MD0004eg

Schedule



MD0390.ppt Slide # 8

UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
THAAD User Operational Evaluation System (UOES)

Estimated Funding
$190M–$195M

Contract Point Of Contact
W.L. Schick (205-955-3044)

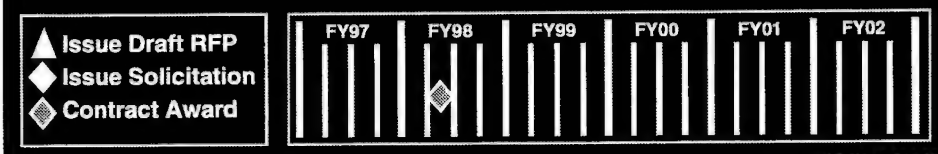
Contract Type
CPFF

Kind Of Award
Exercise Of Existing Contract Option

Program Description
Contract Option To Manufacture, Integrate, Assemble, Ground Test, And Deliver 40 Missiles For The THAAD User Operational Evaluation System (UOES).

Contractor
Lockheed-Martin Missile And Space

Contractor Point Of Contact
Perry Bakke (408-756-7669)



MD9390.ppt Slide # 9

UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
THAAD Engineering Manufacturing And Development

Estimated Value
$340M–$350M....FY99
$340M–$350M....FY00
$340M–$350M....FY01

Contract Point Of Contact
W.L. Schick (205-955-3044)

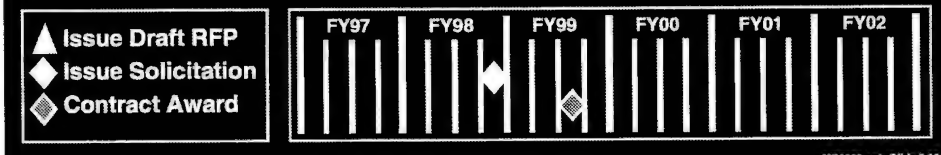
Contract Type
CPAF

Kind Of Award
Sole Source

Program Description
The THAAD System Is The U.S. Land-Based Upper Tier TMD System. The High Altitude And Wide Area Protection Furnished By The THAAD System Will Complement The Lower Tier Systems.

Contractor
Lockheed-Martin Missile And Space

Contractor Point Of Contact
Perry Bakke (408-756-7669)



MD9390.ppt Slide # 10

UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
Software Independent Verification And Validation (IV&V)

Estimated Value
$90M–$110M

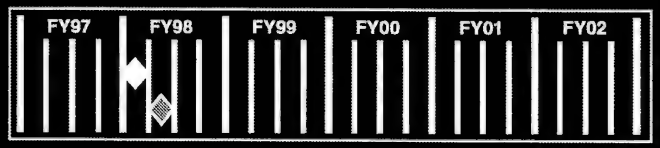
Contract Point Of Contact
W.L. Schick (205-955-3044)

Contract Type
CPAF

Kind Of Award
Small Business Set Aside

Program Description
Software IV&V To Support And Maintain The Transition From Program Definition And Risk Reduction (PD&RR) Phase To The Engineering Manufacturing Development (EMD) Phase Of THAAD.

- Issue Draft RFP
- Issue Solicitation
- Contract Award



MD9390.ppt Slide # 11

UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
Simulation/Hardware-In-The-Loop (HWIL) Development

Estimated Value
$40M–$50M

Contract Point Of Contact
W.L. Schick (205-955-3044)

Contract Type
CPAF

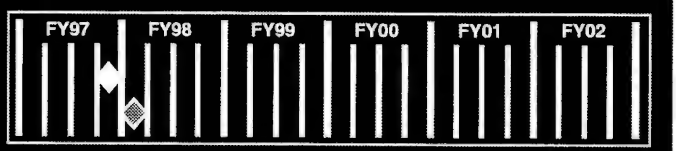
Kind Of Award
Sole Source 8(a) Award

Program Description
Scientific, Engineering, Analysis, And Technical Efforts To Design, Continue To Develop, Fabricate, And Test Simulations, Drivers, And HWIL For The THAAD System.

Contractor
Tech Masters, Inc

Contractor Point Of Contact
Frank Jennings (205-721-6613)

- Issue Draft RFP
- Issue Solicitation
- Contract Award



MD9390.ppt Slide # 12

UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
Design and Development

Estimated Value
In Excess of $1B

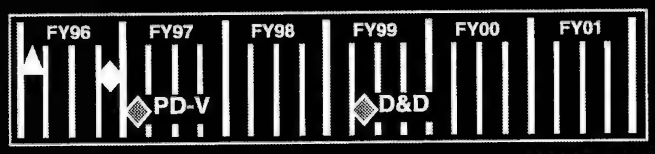
Contract Point Of Contact
U.S. MEADS National Product Office
(205-895-4080)

Contract Type
CPIF

Kind Of Award
Limited Competition

Program Description
MEADS Provides Protection Of The Maneuver Forces. MEADS Defends Critical Assets And Forces Of Both The U.S. Army And U.S. Marine Corps By Providing Robust Defense Against Mass Casualty And Mass Destruction Producing Weapons Such As Cruise Missiles And Short Range Ballistic Missiles.

- Issue Draft RFP
- Issue Solicitation
- Contract Award



UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
Modified Arrow Radar Seeker Test Set

Estimated Value
$400K–$600K

Contract Point Of Contact
Kim Smith (205-955-4665)

Contract Type
CPFF

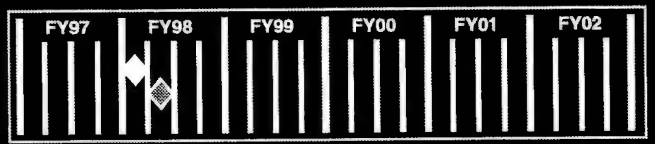
Kind Of Award
Sole Source

Program Description
To Provide A Modified Arrow Radar Seeker Test Set For Use In Emulations Of The Seeker For Software And System Tests.

Contractor
Lockheed-Martin

Point Of Contact
Ed Surowiec (407-356-3257)

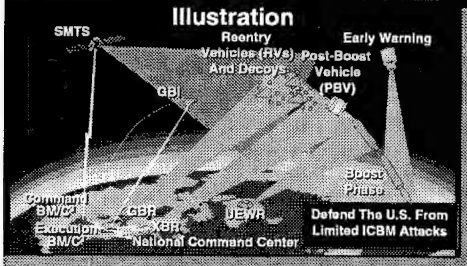
- Issue Draft RFP
- Issue Solicitation
- Contract Award



UNCLASSIFIED

NMD/Ground Based Element Program

Illustration



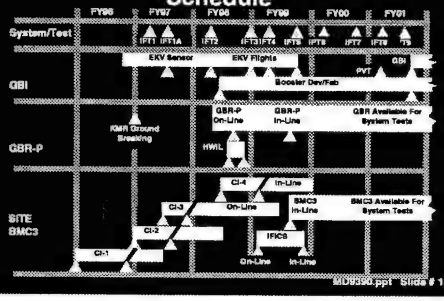
Objective

- Develop And Test Elements Of Initial NMD System Within 3 Years
- Support Capability To Deploy Within 3 Years Of Decision
- Conduct Integrated System Test At USAKA In FY99

Status

- Joint Program Office Established 1 April 1997
- First EKV Sensor Flight Test Successfully Conducted 23 June 1997

Schedule



Ref. MD0008w

UNCLASSIFIED

Contracting Opportunity

Contracting Opportunity
NMD Lead Systems Integration Execution Phase

Estimated Value
TBD - Based On Industry Approach

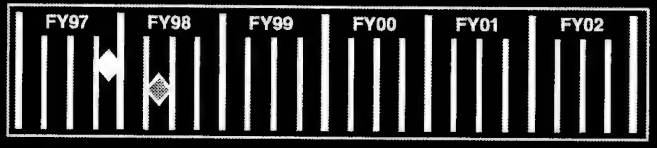
Contract Point Of Contact
Mr. Alex Austin At BMDO
(703-604-4288)

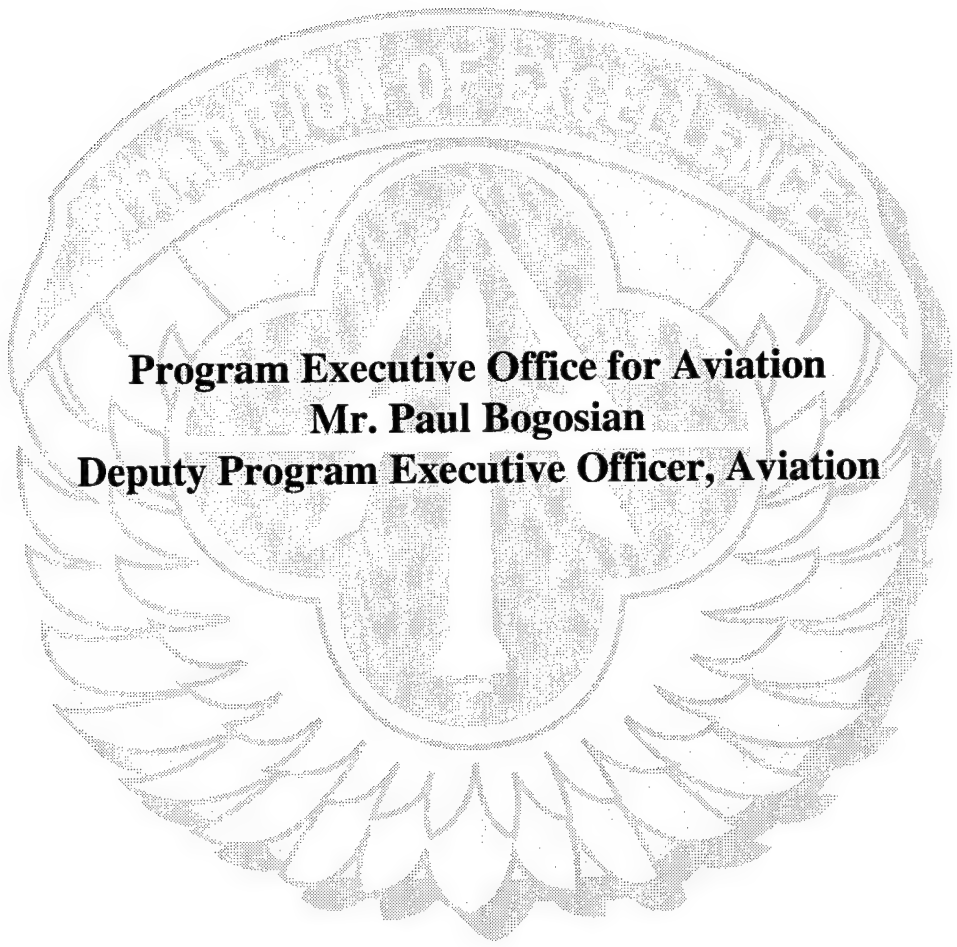
Contract Type
CPAF

Kind Of Award
Limited Competition

Program Description
Design, Develop, Integrate NMD System. Prepare For FY99 Integrated Test. Prepare To Deploy.

- ▲ Issue Draft RFP
- ◆ Issue Solicitation
- ◈ Contract Award





Program Executive Office for Aviation
Mr. Paul Bogosian
Deputy Program Executive Officer, Aviation

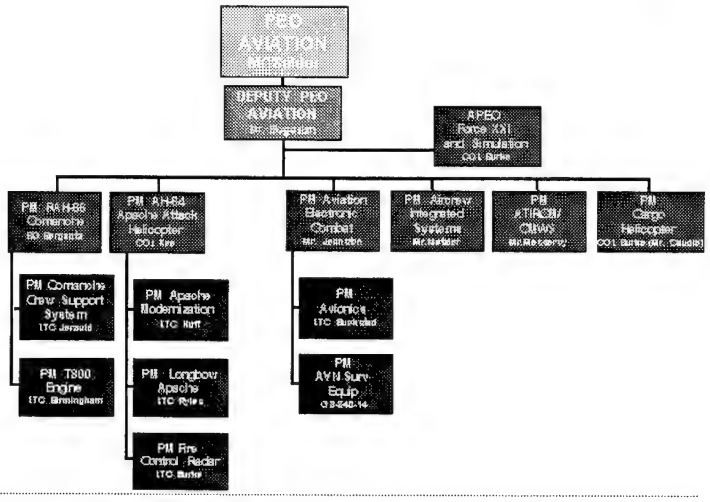
Advance Planning Briefing For Industry (APBI)

Mr. Paul Bogosian
Deputy Program Executive, Aviation

PEO, Aviation Goals

- **Modernize Army Aviation for Least Cost IAW Army Vision 2010**
  - Leverage Acquisition Reform, Science & Technology, Recapitalization, Contractor Logistics Support
- **Ensure Required Aviation Systems Are Ready and Equipped for FY00 Digitized Division**
  - Longbow Apache
  - Kiowa Warrior
  - Army Airborne Command and Control System (A2C2S)

PEO TEAM



PEO Aviation

Authorized TDA

	CIV	Mil	TOT
PEO	20	3	23
AAH	79	15	94
RAH	80	9	89
AEC	73	10	83
ACIS	18	2	20
ICH	16	2	18
Total	286	41	327

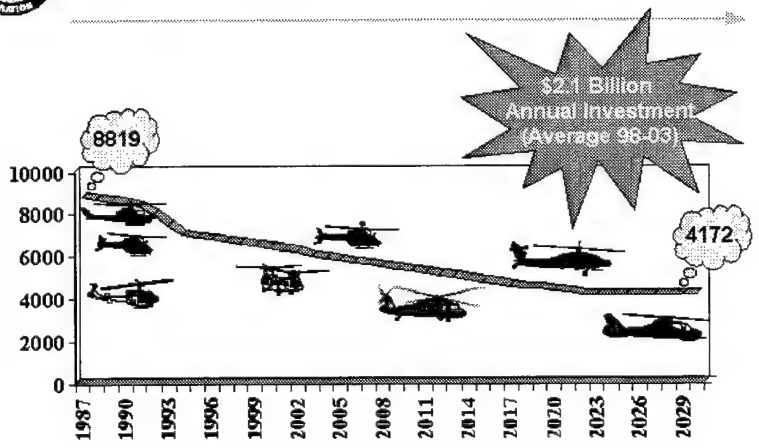
FY98 Personnel Resources (Work Years)

Requirement Type	AMCOM Matrix Support	Contractor Support	Other MSC Support	Totals
Logistics Support	63	34	110	207
Programs/Proc Support	35	25	61	121
Technical Support	105	113	170.6	401
Totals	203	172	183	729

PEO Aviation Move Schedule

	June	July	August	September	October	%movers
PEO HQ						71%
Comanche PMO						79%
Black Hawk PMO						68%
Apache PMO						72%
ACIS PMO						72%
(Air Crew Integrated Systems)						
Kiowa Warrior						68%
AEC PMO						72%
(Aviation Electronic Combat)						
Cargo PMO						55%

Aviation Modernization

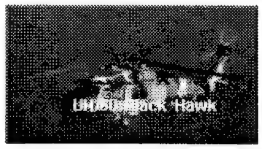


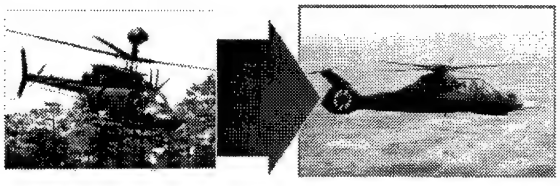
PEO Aviation Budget ($ in Millions)

BES (15 Sep - Before Congressional Reductions)

RDTE	**98**	**99**	**00**	**01**	**02**	**03**	**Total**
Comanche	282.0	371.9	441.3	587.0	738.2	778.1	**3198.5**
Apache	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
AEC	69.4	67.2	9.4	7.9	60.5	50.9	**265.3**
ACIS	7.7	9.0	6.4	9.5	6.5	5.0	**44.1**
Cargo	22.6	28.8	8.2	1.0	0.0	0.0	**60.6**
Total	**382.0**	**476.9**	**488.4**	**610.5**	**805.2**	**834.0**	**3597.0**
APA							
Comanche	0.0	0.0	0.0	0.0	0.0	5.7	**5.7**
Apache	566.4	723.8	824.5	800.1	810.6	766.1	**4491.5**
AEC	99.4	132.0	172.8	132.9	249.5	303.5	**1090.1**
ACIS	12.5	9.3	4.6	1.5	22.4	36.8	**87.1**
Cargo	63.9	108.6	116.6	278.3	451.2	458.3	**1476.9**
Total	**742.2**	**973.7**	**1118.5**	**1212.8**	**1533.7**	**1570.4**	**7151.3**
Total	**1124.2**	**1450.6**	**1606.9**	**1823.3**	**2338.9**	**2404.4**	**10748.3**

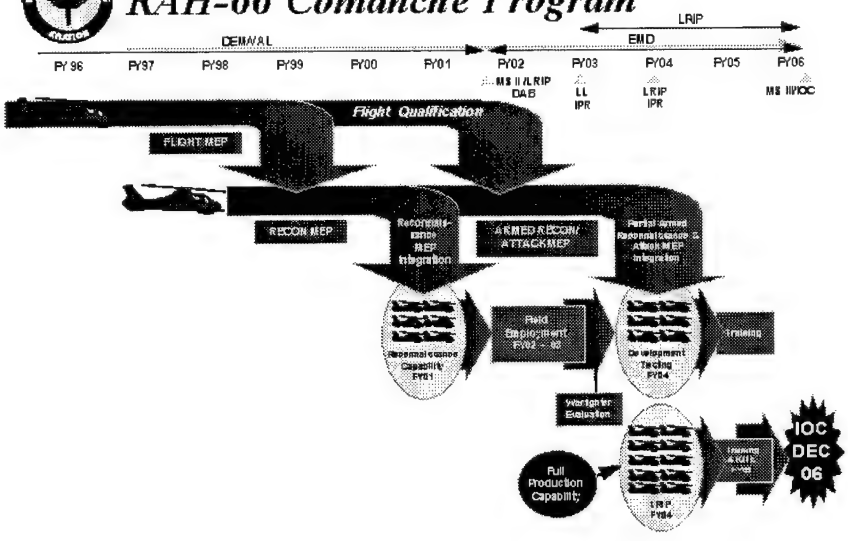
The Modernized Fleet



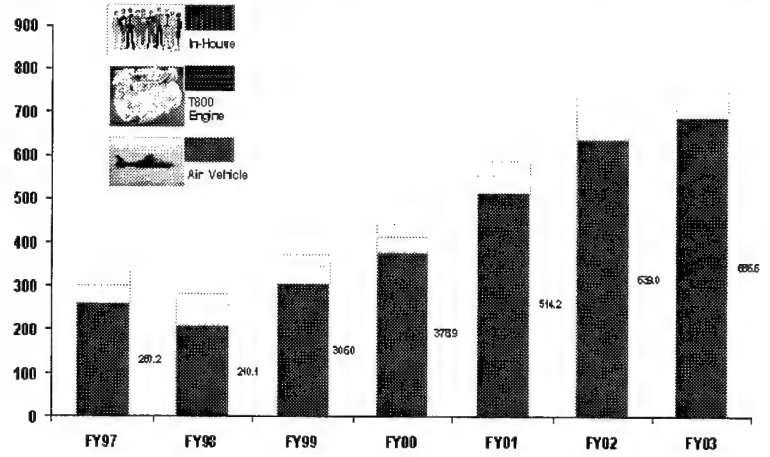


RAH-66 Comanche

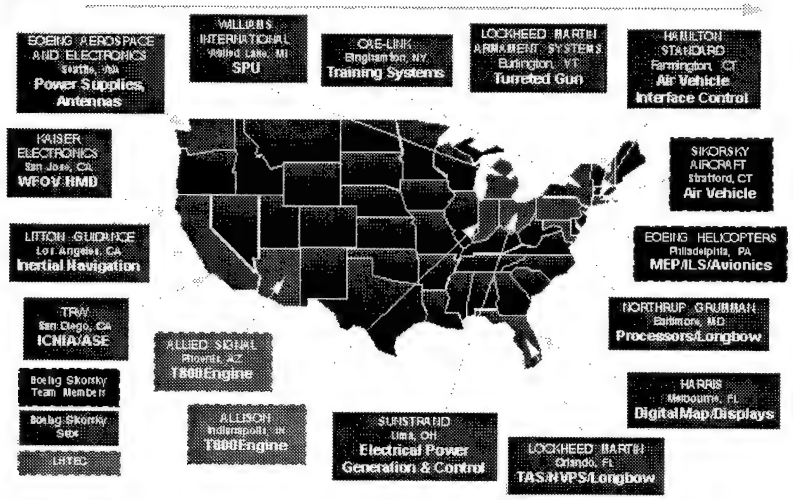
RAH-66 Comanche Program



Comanche Funding Line (Less FCR)



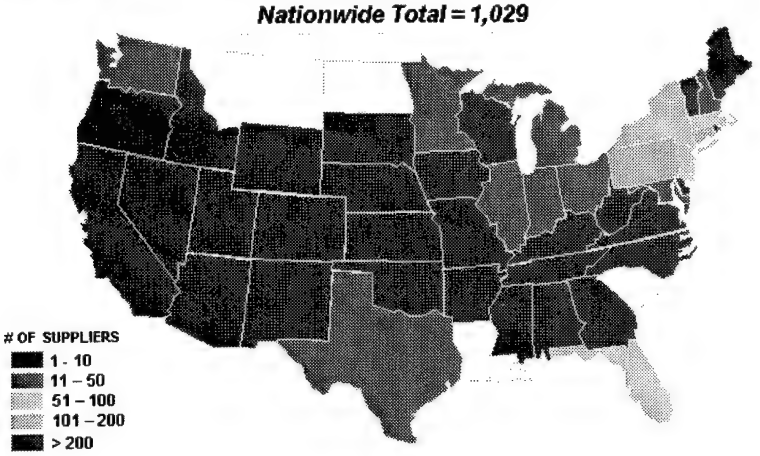
RAH-66 Comanche Contractors



RAH-66 Comanche Dem/Val Program

"Number of 1st & 2nd Tier Suppliers"

Nationwide Total = 1,029

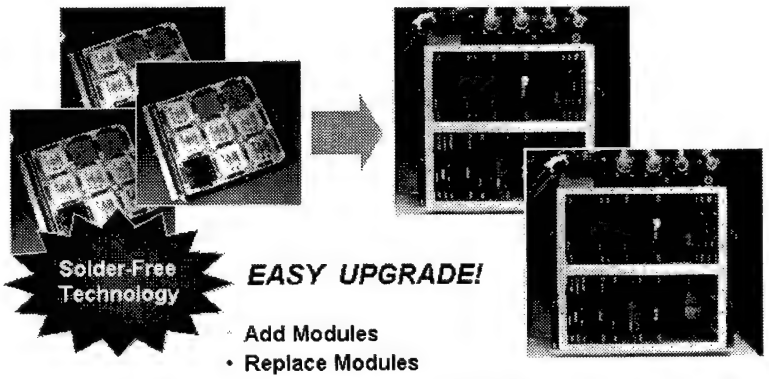


Comanche Processing

Designed For Growth and Technology Upgrades

SEM-E Modules

Two Mission Computers

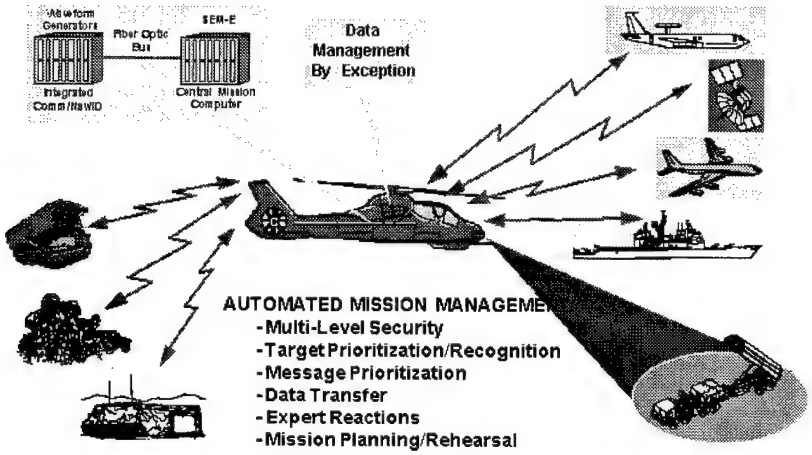


EASY UPGRADE!

- Add Modules
- Replace Modules
- Replace Multi-Chip Packages

2nd Generation Digitization

(Simultaneous/Multi-Channel)



Science and Technology Support

Comanche Technology Challenges Status (3-6-97)

No.	Top 9 Tech Challenges	Assigned Government Organization	Status	Technology Issue
1.	High Temperature Composite Materials	AVRDEC-AATD (Phil LeFerriere) 757-878-3977	R / Y	Current Shafts within Firewall are Subject to Failure Due to Heat or Fire. Need Low Cost/Lightweight High Temperature (>1100 Deg.F) Drive Shaft.
2.	LO Canopy Transparency	AVRDEC-AATD (Mac Dinning) 757-878-2561	Y	Multiple Scatter Between Rotor and Canopy Dominates Dynamic Signature at Some Viewing Aspects
3.	Lightweight, Ballistic Armor	AVRDEC – AATD (Kent Smith) 757-878-5875	Y	Existing Armor Technology Will Not Provide Ballistic Protection At Desired Low Aerial Density
4.	Helmet Mounted Flat Panel Display	NVSED (Howard Kessler) 703-704-1382	Y	Need For High-Light-Throughput Operation Integrated Heater Element, and Full MIL Ruggedization
5.	Paint (IR, Visual, etc.)	AVRDEC – AATD (Mac Dinning) 757-8787-2561	Y	Current Baseline MIL-SPEC 46186 Aircraft Green Paint Does Not Meet Comanche Established Requirement
6.	LO Dielectric/High Strength Materials	AVRDEC – AATD (Mac Dinning) 757-878-2561	W	Material Design Required to Overcome High Frequency Skin Limitations and Improve RCS Performance Over Baseline Skin

Science and Technology Support (Cont'd)

Comanche Technology Challenges Status (3-6-97)

No.	Top 9 Tech Challenges	Assigned Government Organization	Status	Technology Issue
7.	Aluminum Beryllium/Lithium Aluminum	AVRDEC-AATD (Michael Galvas) 757-878-5732	B	Corrosion Protection Coating Technology and Methods For Application of Coatings
8.	Regime Recognition, Safe-Life and Damage Tolerance (Usage Monitoring)	AVRDEC (Jack Tanney) 757-878-5602	B	Regime Recognition Integration and Risk Reduction/Regime Recognition Application to Usage Monitoring
9.	ECS/Regenerative Filters	AVRDEC – AATD (Kevin Nolan) 757-878-5875	W	Current Pressure Swing Absorber (PSA) Filter Failed to Meet Established Performance Requirement

Contracting Opportunities

(Comanche Development)

- Description: Aircraft development contract for the RAH-66 Comanche.

- Sole Source-Boeing/Sikorsky
- Value: $1.7B
- POC: Carolyn Orf (205) 842-7743

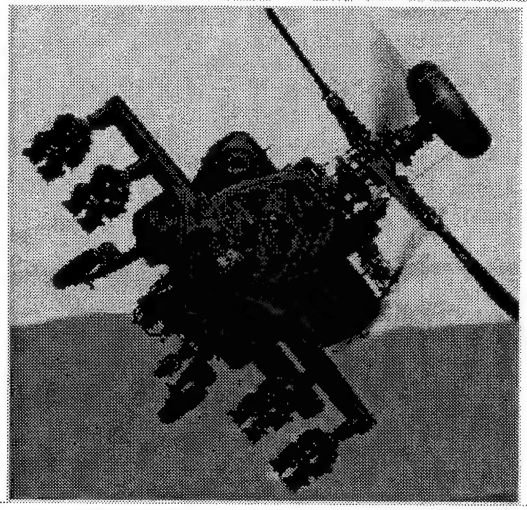
Contracting Opportunities

(T-800 Engine)

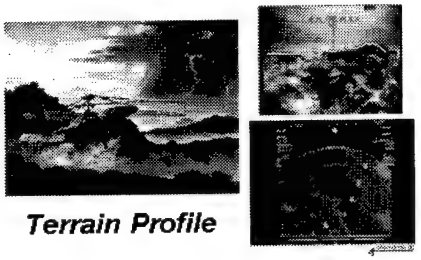
- Description: Engine development contract for the RAH-66 Comanche.

- Sole Source-LHTEC
- Value: $227M
- POC: Carolyn Orf (205) 842-7743

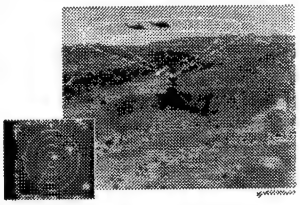
AH-64D Longbow Apache



Longbow Capability



Terrain Profile



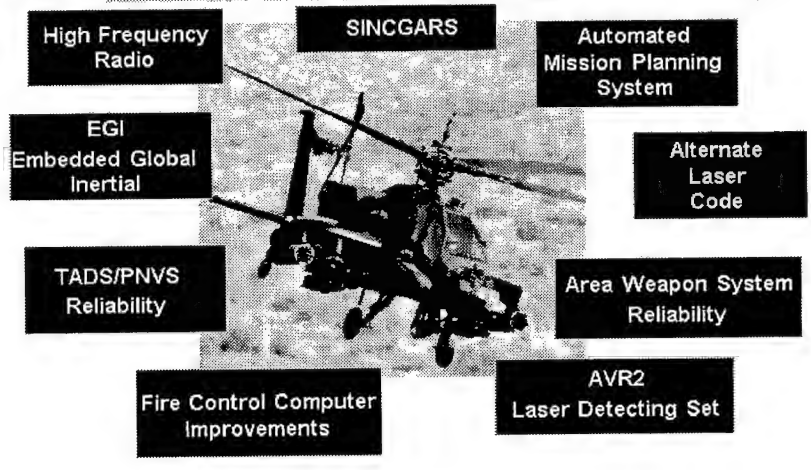
Air Targeting

Longbow Apache Provides:

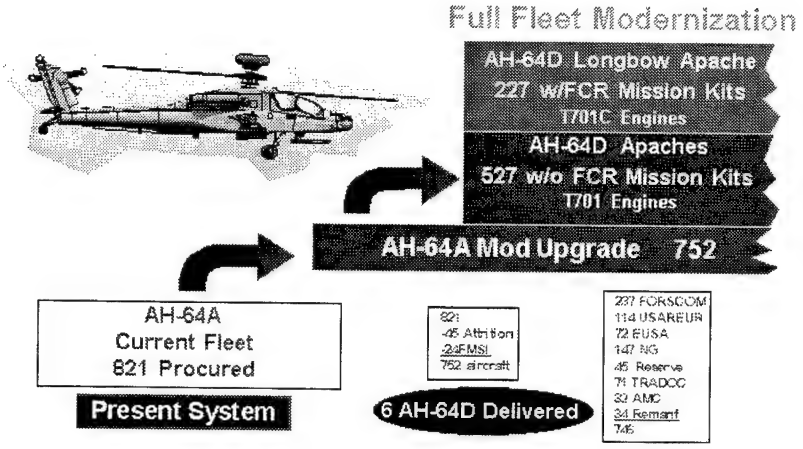
- Automatic target detection, classification, and prioritization
- Adverse weather precision strike capability
- Multi target engagement capability
- Fire and forget capability
- Destruction of Enemy Air Defense

Ground Targeting

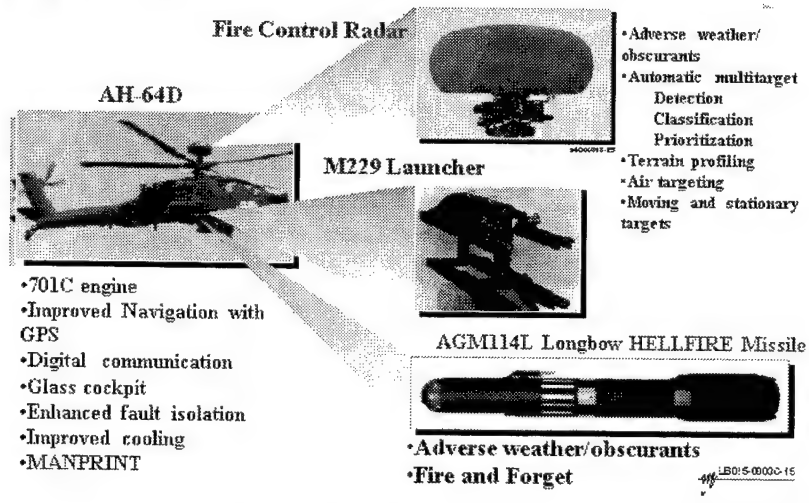
AH-64A Apache Modernization



US Army Apache Modernization



Longbow: The System



Apache Challenges

- **Top five technical:**
  - **Improved Sensors**
  - **Digitization**
  - **Software Acquisition/Support Under Commercial Practices**
  - **Propulsion / Drive Train Upgrades**
  - **Airframe Life Extension**

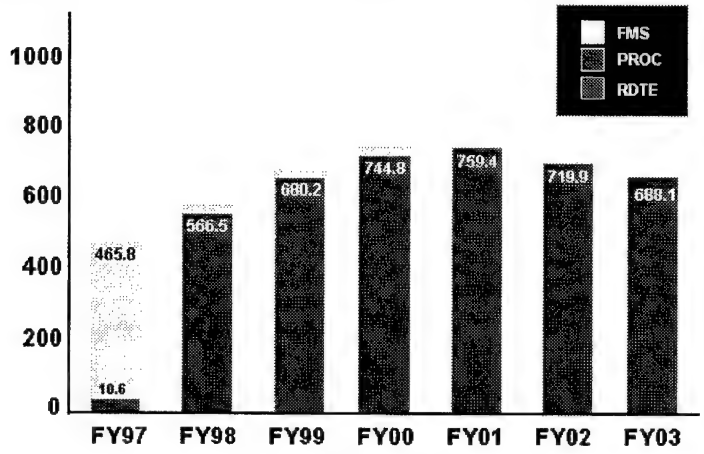
P70001

Apache Challenges

- **Top five technical:**
  - **Improved Sensors**
  - **Digitization**
  - **Software Acquisition/Support Under Commercial Practices**
  - **Propulsion / Drive Train Upgrades**
  - **Airframe Life Extension**

P70001

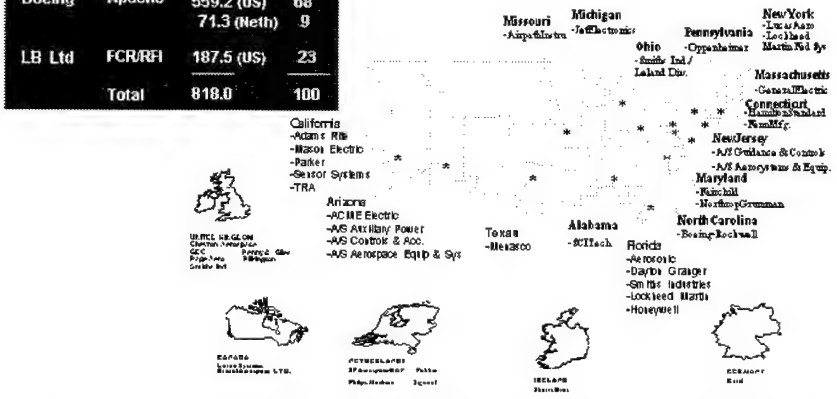
Apache Funding ($M)



(FY98 PRES BUD)

AH-64D Apache Vendor Base

Prime	System	FY 97/98 Workshare $(M)	%
Boeing	Apache	559.2 (US) 71.3 (Neth)	68 9
LB Ltd	FCR/RFI	187.5 (US)	23
	Total	818.0	100



Contracting Opportunities

(AH-64D Longbow Production)

- Description: Multi-year contracts for production of the AH-64D Longbow.

- Sole Source-Boeing/Multiyear
- Value: $4.9B
- POC: Joanne Kennedy (205) 313-4029

Contracting Opportunities

(AH-64D Fire Control Radar)

- Description: Multi-year contract for production of the AH-64D Longbow Fire Control Radar.
  - Requires Congressional Approval
  - Award Date: Dec 97

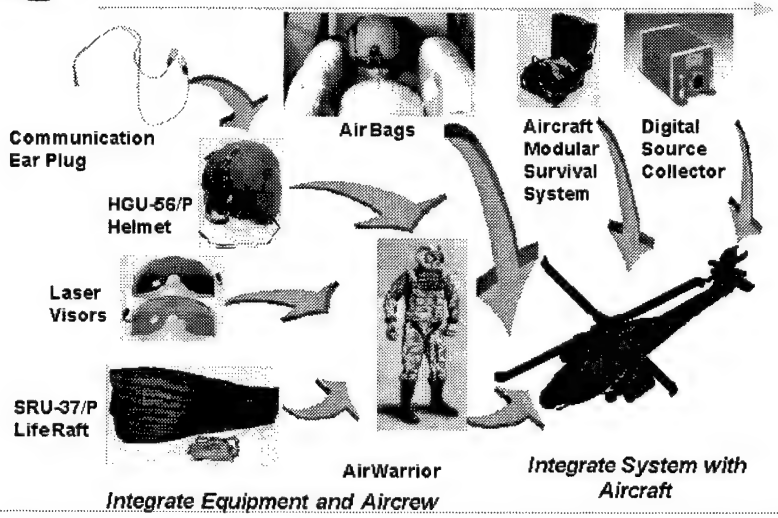
- Sole Source-Lockheed/Martin
- Value: $533M
- POC: Joanne Kennedy (205) 313-4029

Contracting Opportunities

(AH-64D Radar Frequency Interferometer)

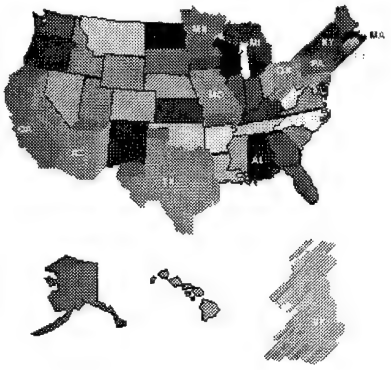
- Description: Multi-year contract for production of the AH-64D Longbow Radar Frequency Interferometer.
  - Potential contract in negotiations
  - Award Date: Dec 97
- Sole Source-Lockheed/Martin
- Value: $92M
- POC: Joanne Kennedy (205) 313-4029

Aircrew Integrated Systems Projects

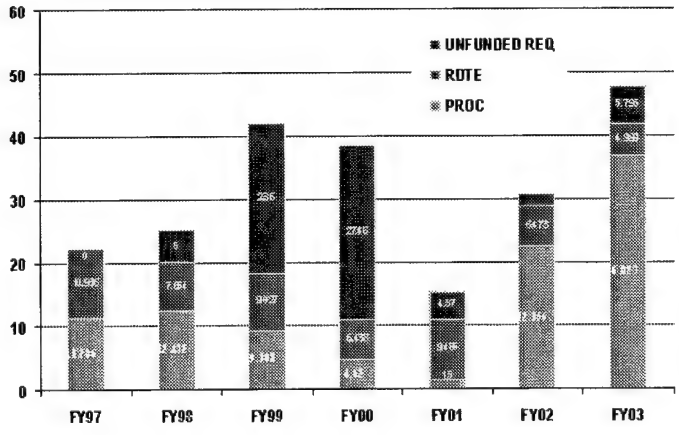


ACIS PMO Vendor Base

PRIME	SYSTEM	FY97/98 WORK $(M)	SHARE %
Gentex	AIHS	5.994	12
Simula	CABS	27.138	55
Motorola	Air Warrior	6.868	14
AOtec	JALEPV	4.215	8
Production Products	CEP	0.100	<1
Smiths Industries	DSC	0.100	<1
Programmatic and Technical Support	All	4.337	9
	TOTAL	48.752	100



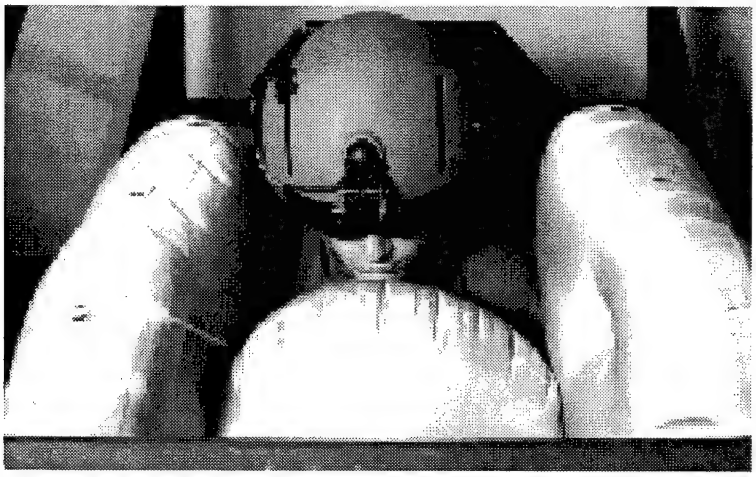
ACIS PMO Funding



Future Technology Needs

- **Light Weight Helmet Mounted Display Components**
- **Air Bag Gas Generators**
- **Weight and Bulk Reduction**
- **Heat Stress (Eliminate) for Air Warrior Components**
- **Significant O & S Savings from Digital Source Collector**

Cockpit Airbag System



Contracting Opportunities

(Digital Source Collector (DSC) Production)

- Description: The Digital Source Collector is a multifunction data recorder which will simultaneously acquire and process flight performance, aircraft structural, engine, and drive train electronic data, and voice interchanges during flight.
- Award Date: October 98
- Competitive-COTS
- Value: $72M
- POC: Bob Sheibley (205) 313-4265

Contracting Opportunities

(Air Warrior (AW) Phase II Development)

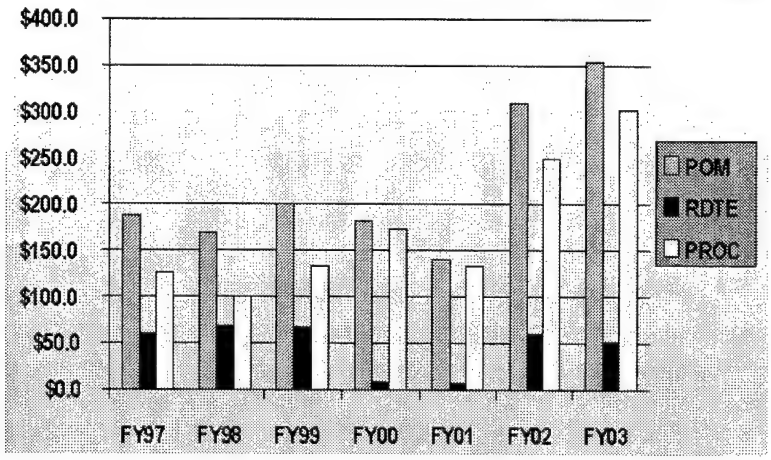
- Description: AW is the rotary wing aviation focus for providing a mission tailorable system that standardizes and integrates Aviation Life Support Equipment (ALSE) for aircrews during flight and ground operations. Some portions of the system will interface with aircraft-mounted equipment and will require integration through a common interface and designed-in compatibility.
- Award Date: October 98
- Competitive
- Value: $92M
- POC: Paul Bippen (205) 313-4263

Contracting Opportunities

(Air Warrior (AW) Phase II Development)

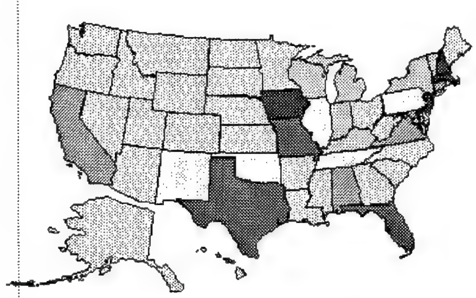
- Description: AW is the rotary wing aviation focus for providing a mission tailorable system that standardizes and integrates Aviation Life Support Equipment (ALSE) for aircrews during flight and ground operations. Some portions of the system will interface with aircraft-mounted equipment and will require integration through a common interface and designed-in compatibility.
- Award Date: October 98
- Competitive
- Value: $92M
- POC: Paul Bippen (205) 313-4263

PM AEC POM Funding Line ($M)



AEC Contractor Location By State

CONTRACTOR	PROGRAM	FY97/FY98	ST	%
ASSURANCE TECH CORP	A2C2S, DIV XXI, GPS, IDM, TF XXI	$ 22,811	MA	7.2%
ASTRONAUTICS	GPS	$ 5,167	WI	1.2%
BOEING (SDHS)	ATRJ, ATIRCM, AN/ARC-220, IDM	$ 16,863	MO	5.5%
CAS	AN/ARC-220, ATIRCM	$ 3,768	AL	[illegible]
DYNCORP	AN/ARC-220, AN/AUR-2A, GPS, AVR2A	$ 15,762	TX	4.7%
GEC MARCONI	GPS	$ 19,155	NJ	6.7%
HONEYWELL	GPS	$ 5,260	FL	1.3%
HUGHES, DANBURY	AN/AUR-2A	$ 7,962	CT	2.7%
ITT	ATRJ, AN/ARC-220	$ 29,889	NJ	10.1%
LOCKHEED SANDERS	ATIRCM	$ 45,371	NH	12.8%
ROCKWELL INTL	IDM, AN/ARC-164, AN/ARC-220, AMPS	$ 46,440	IA	15.6%
SAIC	AN/ARC-164, TF XXI, A2C2S, AMPS	$ 12,889	CA	4.4%
SIKORSKY	ARC-220	$ 3,009	CT	2.7%
SYMETRICS	IDM	$ 5,116	FL	2.2%
UNC AV SVCS	A2C2S, AN/ARC-164, AN/ARC-220, TF XXI, IDM	$ 10,088	MO	3.5%



ONLY CONTRACT TOTALS GREATER THAN $5M SHOWN

AEC Contractor Locations

(Totals Less Than $5.0M)

CONTRACTOR	PROGRAM	FY97/FY98	ST	%
AEL INDUSTRIES	AN/ARC-164	$ 70	PA	0.0%
ALLIED SIGNAL	A2C2S TF XXI	$ 2,169	MD	0.4%
ARINC	ARC-220	$ 560	MD	0.1%
BELL HELICOPTERS TEXTRON	AN/ARC-220	$ 4,000	TX	0.8%
BOEING SIKORSKY A/C SUPT	AN/ARC-220	$ 100	TN	0.0%
CAMBER	ATRJ, ATIRCM, TF XXI	$ 402	AL	0.1%
COBRO	GPS	$ 81	MO	0.0%
COLEMAN RESEARCH CORP	TF XXI	$ 136	FL	0.0%
COMPUTER SCIENCE CORP	AMPS, AN/ARC-220	$ 3,447	VA	0.7%
DATA INC	TF XXI	$ 125	MO	0.0%
ENGINEERING & PROFESSIONAL SVCS	AMPS, ATRJ	$ 415	NJ	0.1%
FIBERTEC	ATIRCM	$ 110	MI	0.0%
HUGHES DEFENSE COMM	AN/ARC-164	$ 3,601	IN	0.7%
IIT RESEARCH INSTITUTE	AN/ARC-220	$ 240	IL	0.1%
INNOVATIVE CONCEPTS INC	AN/ARC-220, IDM	$ 3,852	VA	0.7%
[illegible]	AN/ARC-220	$ 402	MD	0.1%
LBGAD - RAYTHEON ESYS	AN/ARC-220	$ 3,424	KY	0.7%
LITTON	AMPS	$ 404	CA	0.1%
LOCAL ECONOMY (ST LOUIS)	TF XXI	$ 201	MO	0.0%
LOCKHEED MARTIN FED	AN/ARC-220, IDM	$ 2,270	NY	0.4%
LOCKHEED MARTIN LOG	AN/ARC-220, IDM	$ 1,119	TX	0.2%
MANTECH	ARC-220	$ 500	NJ	0.1%
MNEMONICS INC	A2C2S	$ 700	VA	0.1%
NATIONS INC	AMPS, AN/ARC-220, GPS, IDM	$ 1,212	NJ	0.2%
SDI	AMPS, IDM	$ 2,460	AL	0.5%
SMITHS IND	AMPS, GPS	$ 2,087	MI	0.4%
STI	A2C2S, DIV XXI, TF XXI	$ 4,460	FL	0.9%
THIOKOL	AIRCOMM	$ 2,750	AL	0.5%
UNC LEAR SERVICES, INC	AN/ARC-164, AN/ARC-220	$ 34	OK	0.0%
VITRONICS	IDM	$ 439	NJ	0.1%
WESTAR	TF XXI, AN/ARC-220, ATRJ, GPS, IDM	$ 1,190	[illegible]	0.2%

Science and Technology Support

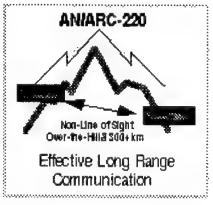
No.	Technology Challenge	Assigned Gov't Organization	Status	Technology Issues
1.	Broad-Band Laser Sources For Infrared Missile Jamming	NVESD (Dr. Joe O'Connell) 908-427-4870	Y	Current Lasers Operate Naturally at Only a Few Specific Wavelengths in the Infrared
2.	Integrated Obstacle Avoidance System	NVESD (Dr. Joe O'Connell) 908-427-4870	Y	In Order to Detect and Avoid Wires at NOE, a High Repetition Rate Laser Radar Technology is Required
3.	Micro-Electronic Miniaturization	CECOM RDEC	Y	Electronics That Can Withstand Extreme Military Environments
4.	Increasing Antenna Effectiveness	CECOM RDEC (John Prorok) 732-427-3548	Y	The Close Proximity of Many Antennas on Platforms Results in "Co-Site" Interference Problems

Contracting Opportunities

(AN/ARC-220)

- Description: Hardware procurement of the AN/ARC-220, VRC-100, and maintenance trainers. The AN/ARC-220 is an HF radio that will provide secure and non-secure voice and data communications.
- Award Date: 2nd Quarter, Fiscal Year 98

- Sole Source-Rockwell Collins
- Value: $21.9M
- POC: MAJ Crabb (205) 313-6608

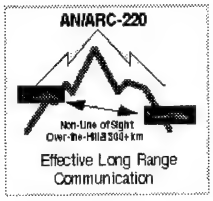


Effective Long Range Communication

Contracting Opportunities

(AN/ARC-220)

- Description: Aircraft integration kits for UH60, AH64A/D and OH58D.
  - Award Date: 3rd Quarter, Fiscal Year 98
- Sole Source (aircraft manufacturer)
- Value: $17.3
- POC: MAJ Crabb (205) 313-6608



Contracting Opportunities

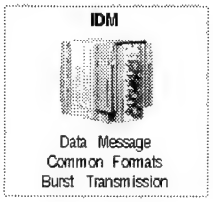
(Advanced Threat Infrared Countermeasures (ATIRCM))

- Description: EMD and programmatic support for ATIRCM. ATIRCM is an airborne system which provides infrared homing protection to the aircraft by detecting and defeating approaching anti-aircraft missiles.
- Sole Source-Lockheed Martin/Sanders
- Value: $21.8M
- POC: Dr. Messervy (205)313-1049

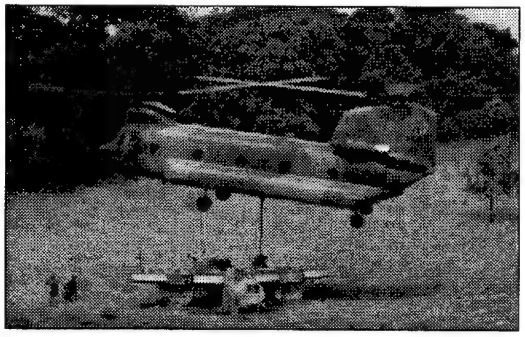
Contracting Opportunities

(Improved Data Modem (IDM))

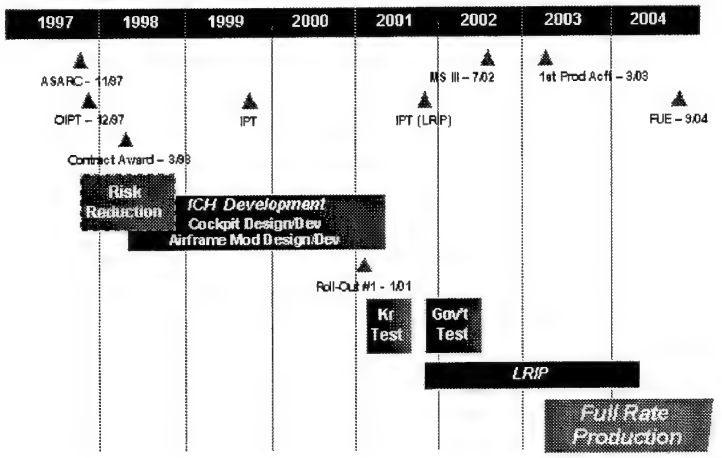
- **Description: Hardware procurement of the IDM. The IDM is a multi-service, interference-resistant modem.**
  - Award Date: October 98
- **Competitive**
- **Value: $18-25M**
- **POC: Mr. Tim Floate (205) 313-0638**



Improved Cargo Helicopter (ICH)



ICH Program Schedule



Current ICH Program Funding

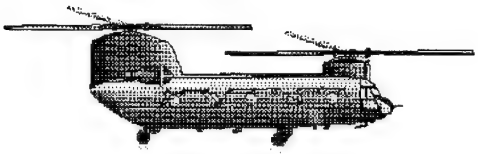
MS II ▼ MS III ▼ 1st Delivery ▼

FY	97	98	99	00	01	02	03	To Complete	Total
RDT&E	17.1	22.6	28.8	8.2	1.0			0.0	77.7
Procure				29.2	77.1	229.7	235.7	2,837.1	3408.8
Sub Total	17.1	22.6	28.8	37.4	78.1	229.7	235.7	2,837.1	3486.5
Quantity						12	18	270	300

Service Life Extension Program

SLEP/ICH

DEFICIENCIES	SOLUTION
• **Rising O&S Costs and Readiness at Risk**	• **Vibration Reduction and Overhaul/Remanufacture**
• **Avionics/Electronics**	• **Modernize to Digitization Capability**
• **Lift Performance**	• **Engine Conversion From 712 to 714 with FADEC**



Contracting Opportunities

(Cargo Helicopter Force XXI Cockpit)

- Description: Design and implement a modernized cockpit compatible with the future "digitized battlefield." The cockpit will feature long-range precision navigation and communication, open system architecture, and compatibility with Aviation Mission Planning System.
- Sole Source: Boeing
- Value: $300M
- POC: Cliff Karvinen (205)-313-4308

Contracting Opportunities

(Cargo Helicopter Training & Simulation Devices)

- Description: Update existing trainers and provide new cockpit and maintenance trainers for the Cargo Helicopter.

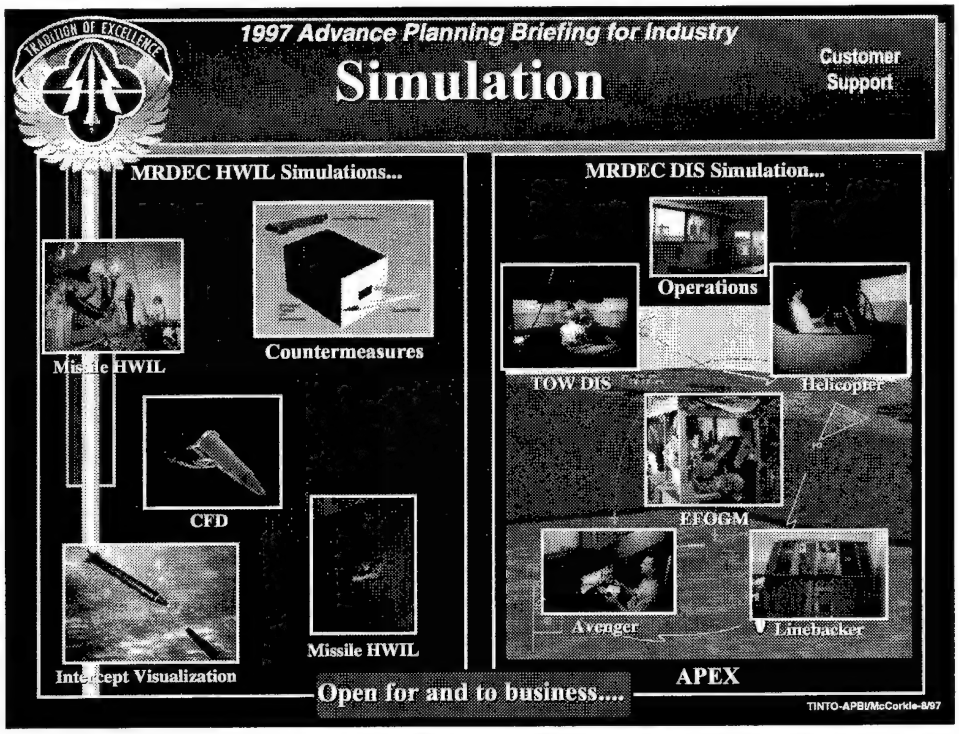
- Competitive

- Value: $100M

- POC: Cliff Karvinen (205) 313-4308

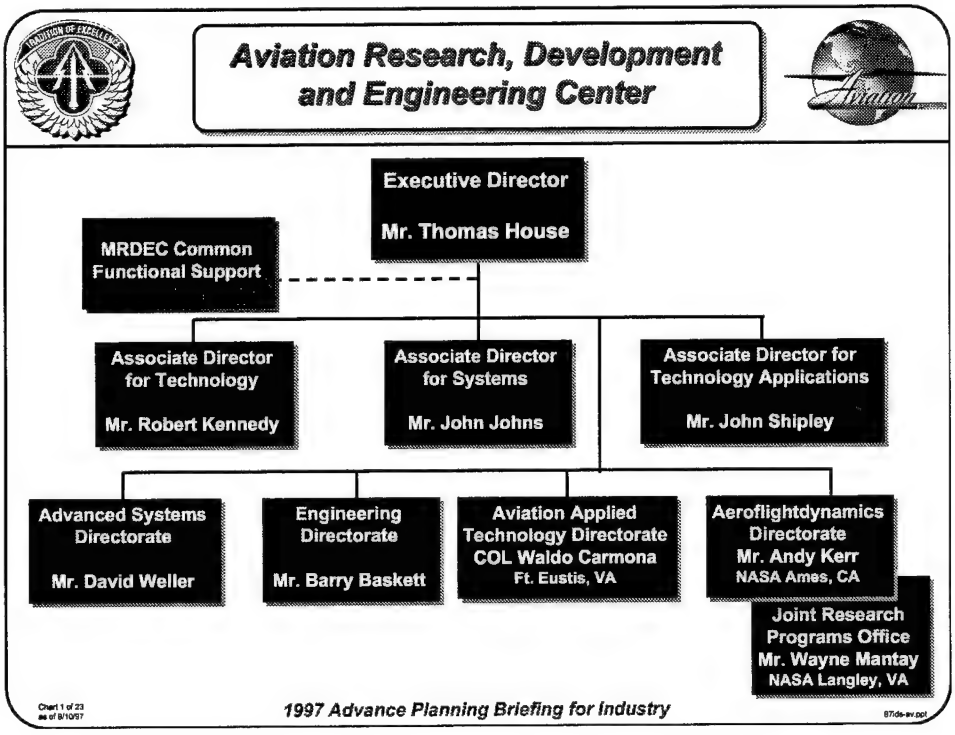
Missile RD&E Center Vision and Strategic Plan

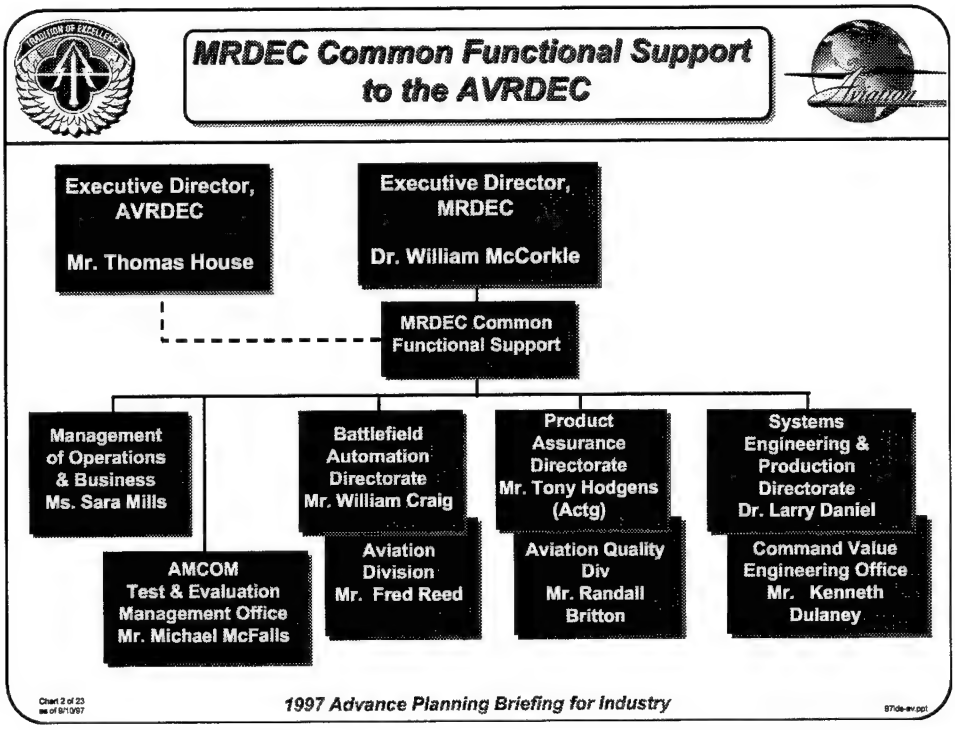
Dr. William C. McCorkle
Technical Director for Missiles, USAAMCOM and
Executive Director Missile RD&E Center


1997 Advance Planning Briefing for Industry
Simulation
Customer Support
MRDEC HWIL Simulations...
Missile HWIL
Countermeasures
CFD
Missile HWIL
Intercept Visualization
MRDEC DIS Simulation...
Operations
TOW DIS
Helicopter
EFOGM
Avenger
Linebacker
APEX
Open for and to business....
TINTO-APB/McCorkle-8/97

Aviation RD&E Center Vision and Strategic Plan

Mr. Tom L. House
Technical Director for Aviation, USAAMCOM and
Executive Director Aviation RD&E Center


Aviation Research, Development and Engineering Center
Executive Director
Mr. Thomas House
MRDEC Common Functional Support
Associate Director for Technology
Mr. Robert Kennedy
Associate Director for Systems
Mr. John Johns
Associate Director for Technology Applications
Mr. John Shipley
Advanced Systems Directorate
Mr. David Weller
Engineering Directorate
Mr. Barry Baskett
Aviation Applied Technology Directorate
COL Waldo Carmona
Ft. Eustis, VA
Aeroflightdynamics Directorate
Mr. Andy Kerr
NASA Ames, CA
Joint Research Programs Office
Mr. Wayne Mantay
NASA Langley, VA
Chart 1 of 23
as of 8/10/97
1997 Advance Planning Briefing for Industry
97de-av.ppt


MRDEC Common Functional Support to the AVRDEC
Executive Director, AVRDEC
Mr. Thomas House
Executive Director, MRDEC
Dr. William McCorkle
MRDEC Common Functional Support
Management of Operations & Business
Ms. Sara Mills
Battlefield Automation Directorate
Mr. William Craig
Product Assurance Directorate
Mr. Tony Hodgens (Actg)
Systems Engineering & Production Directorate
Dr. Larry Daniel
AMCOM Test & Evaluation Management Office
Mr. Michael McFalls
Aviation Division
Mr. Fred Reed
Aviation Quality Div
Mr. Randall Britton
Command Value Engineering Office
Mr. Kenneth Dulaney
Chart 2 of 23
as of 8/10/97
1997 Advance Planning Briefing for Industry
97de-av.ppt

Missile RD&E Center Opportunities

Dr. Paul L. Jacobs
Associate Director for Technology, Missile RD&E Center

1997 Advance Planning Briefing for Industry

Advanced Concepts POC List

MRDEC "When it takes a Rocket Scientist..."

Concept	POC	Branch	Phone
UGV/S - RWC - SCORPION - Fire & Forget - Program 559	Ms. Suzy Young	Concepts	(205) 876-5663
RADS	Mr. Robbie Roberson	Deep Battle	(205) 876-3660
SCORPION (M270 Replacement)	Mr. Robbie Roberson	Deep Battle	(205) 876-3660
Adaptive Missile	Mr. Robbie Roberson	Deep Battle	(205) 876-3660
2.75" Guided Rocket / Missile	Mr. Forrest Ruble	Deep Battle	(205) 842-8765
LDADS	Mr. Monte Hollowell	Deep Battle	(205) 876-9056
CLAWS	Mr. Mike Wicks	Deep Battle	(205) 876-7459
LOSAT P3I	Mr. Charles Jones	Close Battle	(205) 876-1248
BLASTER	Mr. John Fulda	Close Battle	(205) 876-8478
Powered Submunition	Mr. Jim Dinges	Deep Battle	(205) 876-9276
HI-QUAMS	Mr. Jim Dinges	Deep Battle	(205) 876-9276
Virtual Reality	Mr. Jerry Evans	Plans	(205) 876-2357

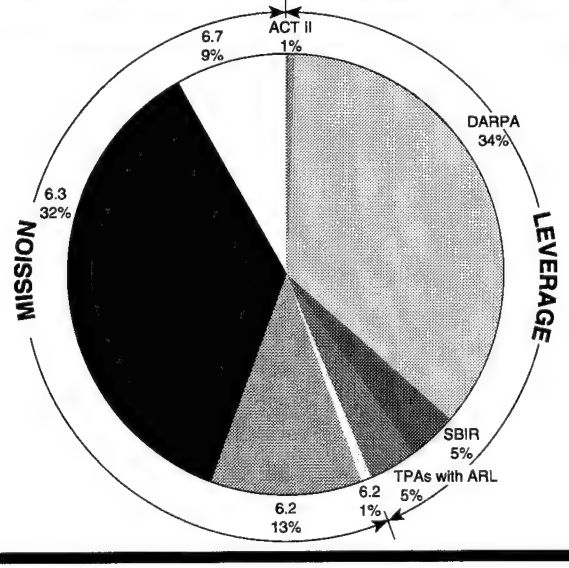
Details Available in Blue Book

MRDEC_APBI-8/97

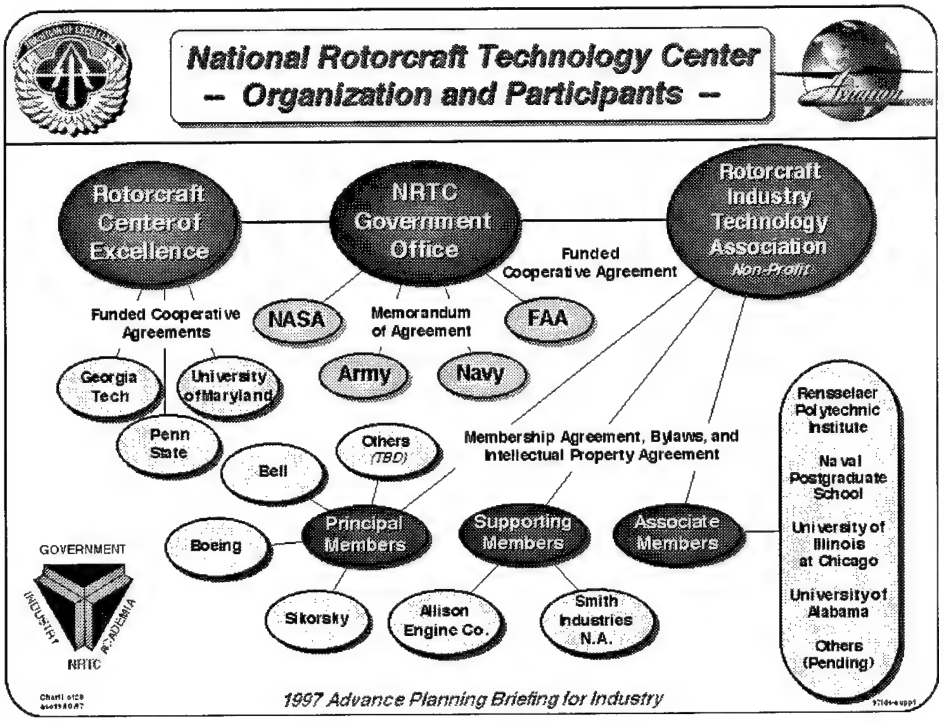
1997 Advance Planning Briefing for Industry

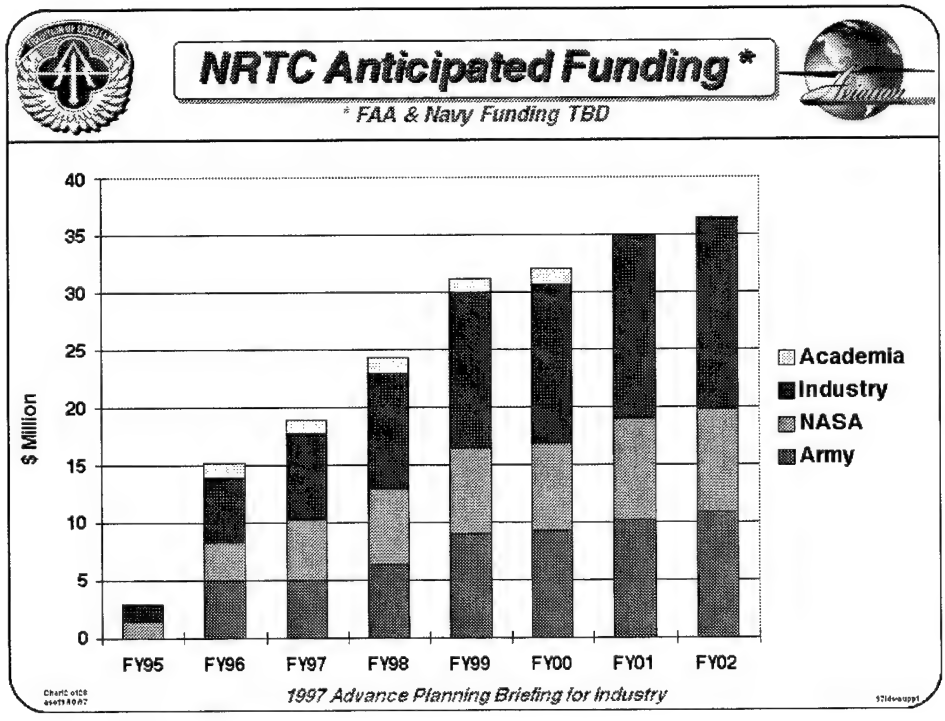
MRDEC Technology Leveraging FY97

MRDEC "When it takes a Rocket Scientist..."



Aviation RD&E Center Contract Opportunities
Mr. Robert V. Kennedy
Associate Director for Technology, Aviation RD&E Center


National Rotorcraft Technology Center
-- Organization and Participants --
Rotorcraft Center of Excellence
NRTC Government Office
Rotorcraft Industry Technology Association
Non-Profit
Funded Cooperative Agreement
Funded Cooperative Agreements
NASA
Memorandum of Agreement
FAA
Army
Navy
Georgia Tech
University of Maryland
Penn State
Bell
Others (TBD)
Membership Agreement, Bylaws, and Intellectual Property Agreement
Boeing
Principal Members
Supporting Members
Associate Members
Sikorsky
Allison Engine Co.
Smith Industries N.A.
Rensselaer Polytechnic Institute
Naval Postgraduate School
University of Illinois at Chicago
University of Alabama
Others (Pending)
GOVERNMENT
INDUSTRY
ACADEMIA
NRTC
1997 Advance Planning Briefing for Industry


NRTC Anticipated Funding *
* FAA & Navy Funding TBD
$ Million
40
35
30
25
20
15
10
5
0
FY95
FY96
FY97
FY98
FY99
FY00
FY01
FY02
Academia
Industry
NASA
Army
1997 Advance Planning Briefing for Industry

Small Business Innovative Research (SBIR) Program Objectives

- **Stimulate Technological Innovation**
- **Increase Small Business Participation in Federal R&D**
- **Increase Private Sector Commercialization of Technology Developed through Federal R&D; Document Return on Investment**
- **Foster and Encourage Participation by Woman-owned and Socially and Economically Disadvantaged Small Businesses**

FY97 SBIR

• FY97 DA Extramural R&D Program	$ 3.76 Billion
• SBIR Tax (2.5%)	$ 93.3 Million
• AVRDEC SBIR Program	$ 9.0 Million
• Number of DA Phase I	289
• AVRDEC PHASE I	13
• Number of DA Phase II	93
• AVRDEC PHASE II	9

Milestones for DA SBIR Program

• Solicitation Opens	May
• Solicitation Closes	July
• Evaluation of Phase I Proposals	July-October
• Phase I Contract Awards	November
• Phase II Letters of Invitation	May
• Phase II Proposals Due	June
• Evaluation of Phase II Proposals	June-July
• Phase II Contract Awards	December

SBIR Provides Opportunities For Large Companies Too!

- Opportunities exist for Large Companies, as well as Small Companies, through Teaming, to harness innovative talent.
- Large Companies can be a Subcontractor on Phase II SBIR programs.
- "Mentoring" relationship of Large Company to Small Company under "Fast Track" matching funds.
- Small Companies retain the patent right to any invention.

AVRDEC S&T Programs & Other Acronyms

3rdGARD	Third Generation Advanced Rotor Design
ACTD	Advanced Concept Technology Demonstration
ALERT	Air/Land Enhanced Reconnaissance and Targeting
AMUST	Airborne Manned/Unmanned Systems Technology
ARCAT	Advanced RotorCraft Aeromechanics Technology
ART	Advanced Rotorcraft Transmission
ATD	Advanced Technology Demonstration
AWE	Advanced Warfighting Experiment
BHAW	Brilliant Helicopter Advanced Weapons
FMTI	Future Missile Technology Integration
HACT	Helicopter Active Control Technology
HQ	Handling Qualities; Headquarters
ICT	Integrated Concepts Team
IPT	Integrated Product Team
JTAGG	Joint Turbine Advanced Gas Generator
JTR	Joint Transport Rotorcraft
LCPK	Low Cost Precision Kill (2.75" Guided Rocket)
RACE	Rotorcraft Air Combat Enhancement
RAST	Rotorcraft Attack System Technology
RPA	Rotorcraft Pilot's Associate
RWSTD	Rotary Wing Systems Technologies Demonstration
SLAIR	Survivability/Lethality Armament Integration in Rotorcraft
STAS	Subsystem Technology for Affordability & Supportability
STIRR	Subsystem Technology for InfraRed Reduction

1997 Advance Planning Briefing for Industry

WORK UNIT TITLE: Rotary Wing Technology Demonstration
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Mr. Jon Schuck, (757) 878-4304/DSN 927-4304

OBJECTIVES:

- Demonstrate Rapid, Low Risk Development of Affordable, Efficient Rotorcraft Airframes Incorporating Quality Structural Concepts That Fully Exploit Advanced Composite Materials' Strength and Cost Capabilities.

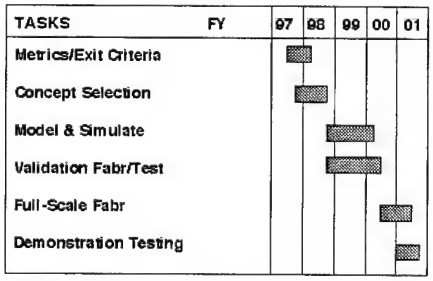
TECHNICAL CHALLENGES:

- Accurate, Rapid Analysis, Modeling & Simulation.
- Multi-Disciplinary Design Optimization for Efficiency.
- Confidence in Extensive Bonding/Cocuring Assys.
- Accurate, Affordable Sensors and Cure Algorithms.
- Lean, Highly Capable Processes.

APPROACH:

- Select Major Airframe Subassembly With Chronic Documented Performance and Affordability Issues.
- Demonstrate Accelerated Development Using Highly Integrated Concepts Analysis Tools.
- Rapid Selection of Innovative, Efficient, Affordable Structural Concepts.
- Develop Virtual Structural & Manufacturing Prototype.
- Conduct Extensive Coupon/Elemental Level Tests to Validate Virtual Prototype and Mitigate Risk.
- Fabricate Full-Scale Assemblies to Validate Virtual Prototype Design.
- Demonstrate Attainment of Exit Criteria via Testing.

SCHEDULE



DELIVERABLES:

FY98 DELIVERABLES:

- Integrated Development System Architecture for Rapid Concept Selection and Analysis.

FY99 DELIVERABLES:

- Virtual Manufacturing and Structural Prototype Validation.
- Advanced Structural Concepts' Coupon/Element Fabrication and Test.

TECH OBJECTIVE SUPPORTED:

- Increased Structural Efficiency.
- Reduced Manufacturing Labor.

WORK UNIT TITLE: Helicopter Active Control Technology
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Mr. Bob Buckanin, (757) 878-4371/DSN 927-4371

OBJECTIVES:

- Demonstrate Rotorcraft & Fixed-Wing Flight Control Technologies Leading to a 2nd-Gen RW Fly-By-Wire FCS.
- 50% Reduction in the Probability of Encountering Degraded Handling Qualities Due to Flight Control System (FCS) Failure.
- 60% Improvement in Weapons Pointing Accuracy.
- 10% Increase in Maneuverability and Agility.
- 30% Reduction in Flight Control System Flight Test Dev Time.

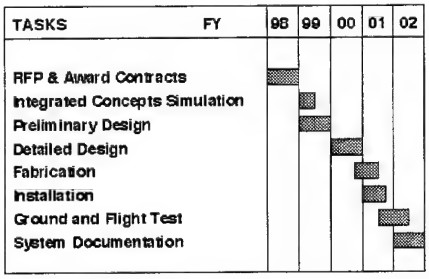
TECHNICAL CHALLENGES:

- Lack of Knowledge of Optimal Rotorcraft Response Types and Optimum Functional Integration of FCS, Weapons Systems, and Pilot Interface.
- Techniques for Sensing Limit Onset and Cueing Pilot.
- Inadequate Air Vehicle Modeling; FCS Design, Optimization, and Validation Techniques.

APPROACH:

- Integrate State-of-the-Art Rotary Wing Flight Control Technologies.
- Exploit Advanced Fixed-Wing Flight Control Architectures and Fly-By-Light Hardware.
- Substantial Industry Participation.
- Use Simulation to Evaluate Candidate System Configurations.
- Use Iron Bird Integration to Reduce Risk.
- Demonstrate Benefits In-Flight Whenever Possible.

SCHEDULE



DELIVERABLES:

10% Increase in Maneuverability & Agility.

- CHPR 4 or Better for Critical MTEs.
- 40% Increase in Weapons Pointing Accuracy.
- Demonstrate ADS-33 Compliance.

TECH OBJECTIVE SUPPORTED:

- 60% Reduction in the Probability of Encountering Degraded Handling Qualities Due to FCS Failure (56%)
- 60% Improvement in Weapons Pointing Accuracy (75%)
- 15% Increase in Maneuverability and Agility (66%)
- 50% Reduction in Flight Control Syetem Flight Test Development Time (60%)

WORK UNIT TITLE: Composite Main Rotor Controls
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Chandon W. Davis, (757) 878-0169/DSN 927-0169

OBJECTIVES:

- Increase the Life of Fatigue Limited Components in the Control System of the Main Rotor.

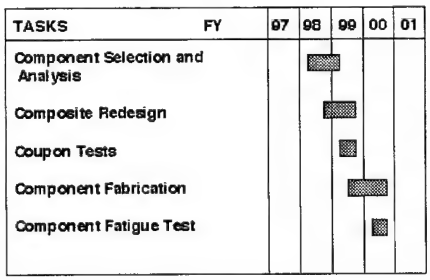
TECHNICAL CHALLENGES:

- Composite Attachments.
- Multi-Axis Loading of Composite Components.

APPROACH:

- Select Several Fatigue Limited Components in an Existing Main Rotor.
- Redesign for Composite Material.
- Conduct Coupon Testing to Determine Fatigue Life.
- Demonstrate Fatigue Life on Full Composite Components.

SCHEDULE



DELIVERABLES:

FY98 DELIVERABLES:

- Composite Component Design Properties.
- Composite Test Coupons.

FY99 DELIVERABLES:

- Composite Main Rotor Component.

TECH OBJECTIVE SUPPORTED:

- Increased Structural Efficiency.

WORK UNIT TITLE: Ballistic Tolerant Stiffeners
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Mr. Nicholas J. Calapodas, (757) 878-3303/DSN 927-3303

OBJECTIVES:

- Evaluate the Z-Pinning Technology for Enhancing Ballistic Tolerance.
- Investigate Z-Pinning as a Potential Replacement of Mechanical Fasteners at Selected Locations.

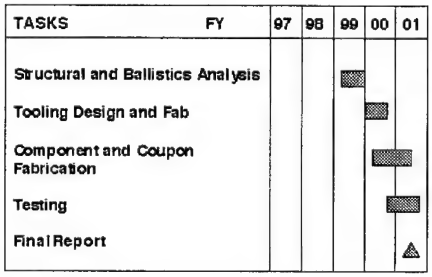
TECHNICAL CHALLENGES:

- Enhance Interlaminar and Peel Strength of Composite Structures.
- Reduce Use of Mechanical Fasteners.

APPROACH:

- Design and Fabricate Helicopter Representative Primary Structures With and Without Z-Pinning.
- Conduct Baseline Stiffness Static, 23mm HEI Ballistic, and Post Ballistic Testing on Both Type of Specimens and Compare Strength Results.
- Conduct Static Testing of Coupon Specimens of Bonded Sub-Structures, Bonded Reinforced with Z-Pinning, and Bonded and Reinforced With Mechanical Fasteners.
- Compare Results.

SCHEDULE



DELIVERABLES:

FY99 DELIVERABLES:

- Component Design and Fabrication.
- Coupon Specimen Fabrication.

FY00 DELIVERABLES:

- Component Static and Ballistic Testing.
- Coupon Specimen Testing.

TECH OBJECTIVE SUPPORTED:

- Increased Structural Efficiency.
- Reduced Manufacturing Labor Hrs/Lb.

WORK UNIT TITLE: Digital Advanced Adaptive Controls & Diagnostics (DAACAD) Program
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Mr. Bert Smith, (757) 878-2400/DSN 927-2400

OBJECTIVES:

- Improve Digital Fuel Controls Technology for Turboshaft Engines.

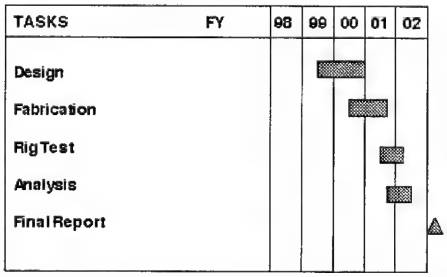
TECHNICAL CHALLENGES:

- Stability vs Response (R. Droop)
- Cost, Weight, Integration of New Components.

APPROACH:

- Integrate Army Adaptive Fuel Controls Features Into Advance Control.
- Improve Diagnostics Capability & Integrate With ATEDS Type Format.
- Integrate Active Combustor & Active Stall/Surge Control.

SCHEDULE



DELIVERABLES:

- Software/Hardware Package to be Integrated and Demonstrated in Advanced Full-Up Engine Program.

TECH OBJECTIVE SUPPORTED:

- Improved SFC/Performance.
- Improved R&M, Survivability.
- Lower Cost and Weight.

WORK UNIT TITLE: Advanced Combustor
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Mr. Robert Bolton, (757) 878-3977/DSN 927-3977

OBJECTIVES:

- Develop High Temperature Combustor for a Turboshaft Engine (3000 SHP Class).

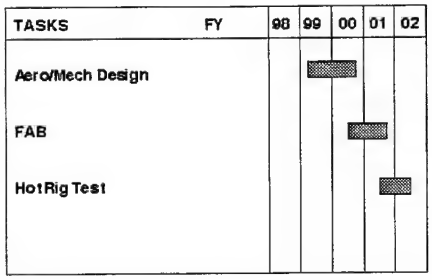
TECHNICAL CHALLENGES:

- Low Pattern Factor.
- High Temperature Capability.
- Durability.
- Operability.
- Cost & Weight.

APPROACH:

- Utilize Advanced Cooling Scheme.
- Apply Advanced 3-D CFD Tools to Provide High Performance and Durability.

SCHEDULE



DELIVERABLES:

- Award CRDA in FY99.

TECH OBJECTIVE SUPPORTED:

- High Inlet and Outlet Temperatures.
- Low Pattern Factor (0.10).
- High Power/Weight Ratio.
- Reduced Cost.

WORK UNIT TITLE: Advanced Multi-Spectral Coatings
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Mr. Jerry Clifford, (757) 878-5838/DSN 927-5838

OBJECTIVES:

- To Develop Advanced IR Paints/Coatings That are Compatible With RAM/RAS Structures.
  - IR & RF Transparent Binders.
  - Low Emissivity, Low Dielectric Pigments.
  - Encapsulated Metal Pigments.
  - Microsphere/Microballon Pigments.
- Improved Control of Thermal Emissions and Solar Reflections.

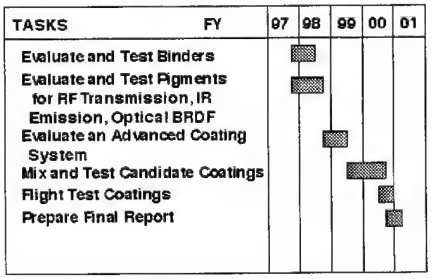
TECHNICAL CHALLENGES:

- Current Low Emissivity IR Coatings Rely Heavily on Metal Pigments Which Can Be Highly Reflective to RF Energy if a Conductive Path is Established Between These Metal Flakes.
- Metal Pigments are Highly Reflective to Solar Energy Which Causes High Levels of Solar Glint From Painted Surfaces.

APPROACH:

- Evaluate and Test Current Binder Systems for IR and RF Transmission.
- Evaluate and Test Low Dielectric and Encapsulated Metal Pigments for IR Emissivity and RF Transmissivity.
- Evaluate and Test Microsphere/Microballon Pigments for IR Emissivity and RF Transmissivity.
- Evaluate and Test Advanced Coating/Structure Systems for Emission and Reflection Control.
- Mix and Test Candidate Coating for Panel Testing of RF Transmission, IR Emission, and Optical BRDF.
- Flight Test Coatings on Aircraft With Thermally Loaded RAM/RAS Structures.

SCHEDULE



DELIVERABLES:

- Advanced IR Coating System That Can be Applied to RAM/RAS Structures.
- Advanced IR Coating System That Can Reduce the Solar Glint Produced With Current Low Emissivity Coatings.
- Flight Test Data Including Acquisition and Lock-On Ranges With and Without Advanced Coatings.

TECH OBJECTIVE SUPPORTED:

- 35%/50% Reduction in IR Signature.

WORK UNIT TITLE: Advanced Combustor
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Mr. Robert Bolton, (757) 878-3977/DSN 927-3977

OBJECTIVES:

- Develop High Temperature Combustor for a Turboshaft Engine (3000 SHP Class).

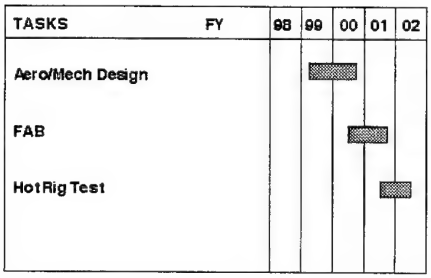
TECHNICAL CHALLENGES:

- Low Pattern Factor.
- High Temperature Capability.
- Durability.
- Operability.
- Cost & Weight.

APPROACH:

- Utilize Advanced Cooling Scheme.
- Apply Advanced 3-D CFD Tools to Provide High Performance and Durability.

SCHEDULE



DELIVERABLES:

- Award CRDA in FY99.

TECH OBJECTIVE SUPPORTED:

- High Inlet and Outlet Temperatures.
- Low Pattern Factor (0.10).
- High Power/Weight Ratio.
- Reduced Cost.

WORK UNIT TITLE: Rotorcraft Air Combat Enhancement (RACE)
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Mr. John Shostak, (757) 878-4101/DSN 927-4101

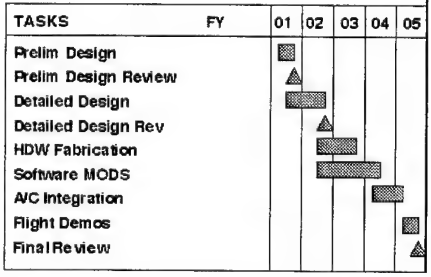
OBJECTIVES:

- Demonstrate the Rotorcraft Integration of Weaponization Technologies That Provide Enhanced Air-to-Air Capability for Army Aviation to Defeat Airborne Threats and Protect Itself and Friendly Forces.

WARFIGHTING CAPABILITIES:

- Improved Survivability.
- Enhanced Multimission Role.
- Increased Weapons Efficiency.

SCHEDULE



PLANNED ACCOMPLISHMENTS:

- FY01 - Conduct Preliminary Design & Review.
  - Initiate Detailed Design.
- FY02 - Complete Detailed Design & Review.
  - Initiate Hardware Fabrication.
  - Initiate Software Modifications.
- FY03 - Complete Hardware Fabrication.
  - Continue Software Mods.
- FY04 - Complete Software Mods.
  - Initiate Aircraft Integration.
- FY05 - Complete Aircraft Integration.
  - Conduct Flight Demos.
  - Conduct Final Review.

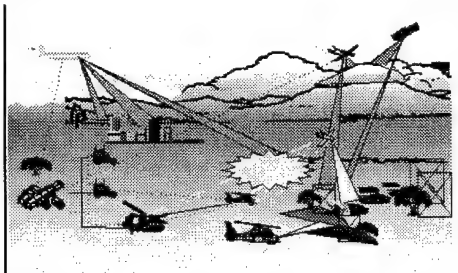
WORK UNIT TITLE: Airborne Manned/Unmanned System Technology System (AMUST)
PERFORMING ORGANIZATION: AATD-AMCOM
POC/PHONE: Mr. Steve Parker, (757) 878-4018/DSN 927-4018

OBJECTIVES:

- Demonstrate the Capability for Advanced Manned and Unmanned Airborne Systems to Effectively Function Together to Potentially Increase the Battlefield Effectiveness of the Combined Arms Team.

WARFIGHTING CAPABILITIES:

- Increased Survivability (Manned System).
- Increase Lethality.
- Expanded Operational Effectiveness.
- Improved Target Acquisition/Positive IFF.
- Improved Battle Damage Assessment.
- Maximize Utility of Weaponry Effective Range.



SCHEDULE

TASKS	FY	98	99	00	01	02
CONCEPT DEFINITION PHASE						
Tradeoff Analysis - Simulation						
Functional Definition						
Demonstrations						
- Intrepid Vanguard						
- ACT II						
SYSTEM DEVELOPMENT & TEST						
System Definition & Design						
Development & Prototyping						
Integration						
Test & Evaluation						
Analysis						
Transition						

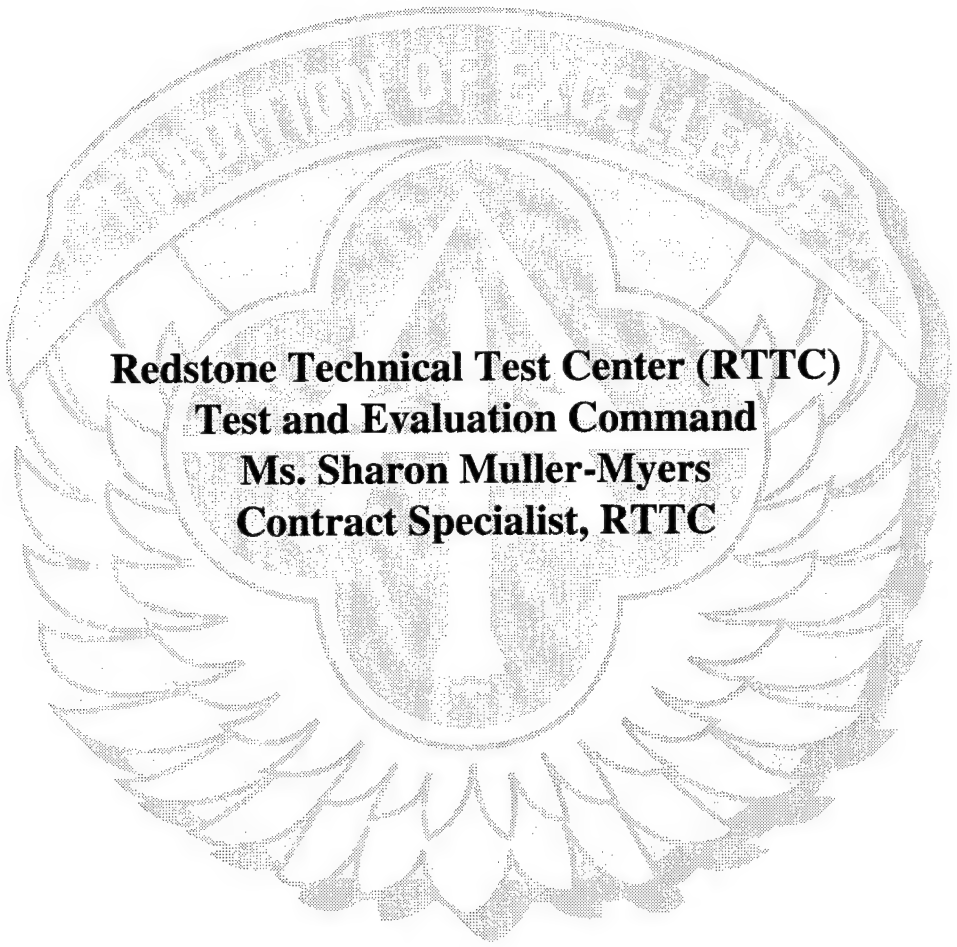
PLANS:

FY00 - Conduct System Definition.
- Conduct Preliminary Design.
- Initiate Component Development/Prototyping.

FY01 - Conduct Detailed System Design.
- Complete Development/Prototyping.
- Initiate System Integration.

FY02 - Conduct Component and Subsystem Test.
- Complete System Integration.

FY03 - Conduct System Level Test and Analysis
- Co-Develop Transition Plan.



Redstone Technical Test Center (RTTC)
Test and Evaluation Command
Ms. Sharon Muller-Myers
Contract Specialist, RTTC

1997 APBI AGENDA

U.S. ARMY AVIATION & MISSILE COMMAND

ADVANCE PLANNING BRIEFING FOR INDUSTRY

MONDAY, OCTOBER 20, 1997

1300 - 1600 **EARLY REGISTRATION - SPARKMAN AUDITORIUM (Bldg. 5304)**

TUESDAY, OCTOBER 21, 1997

0730 - **Registration - Sparkman Center Auditorium (Bldg. 5304)**

0815 - **Administrative Announcements**
Ms. Tammy S. Williams, Acting Technical Industrial Liaison, Technology Integration Office, Missile Research, Development, and Engineering (MRD&E) Center, U.S. Army Aviation & Missile Command (USAAMCOM)

0820 - **Welcome**
MG Emmitt E. Gibson, Commanding General, USAAMCOM

0835 - **U.S. Army Aviation & Missile Command Overview**
Mr. John M. Moore, Resource Management Directorate

0905 - **BREAK**

0930 - **Deputy for Systems Acquisition**
BG Robert E. Armbruster, Deputy for Systems Acquisition

1015 - **Program Executive Office for Tactical Missiles (PEO-TM)**
Ms. Vicky L. Armbruster, Deputy Program Executive Officer, Tactical Missiles

1100 - **Program Executive Office for Air & Missile Defense (PEO-AMD)**
Mr. A. Q. Oldacre, Deputy Program Executive Officer, Air and Missile Defense

1145 - **LUNCH at the Redstone Officers' Club**
Dr. Michael Andrews, Director for Technology Office of the Assistant Secretary of the Army Research, Development, and Acquisition

1345 **Program Executive Office for Aviation**
Mr. Paul Bogosian, Deputy Program Executive Officer, Aviation

1415 - **TRADOC Keynote Address**
COL Mark P. Gay, Director, Future Battle Directorate, U.S. Army Training and Doctrine Command

1500 - **BREAK**

1530 - **Missile RD&E Center Vision and Strategic Plan**
Dr. William C. McCorkle, Technical Director for Missiles, USAAMCOM and Executive Director Missile RD&E Center

1615 - **Aviation RD&E Center Vision and Strategic Plan**
Mr. Tom L. House, Technical Director for Aviation,
USAAMCOM and Executive Director Aviation RD&E Center

1700 - **Question and Answer Session**
Dr. William C. McCorkle, Technical Director for Missiles,
USAAMCOM, and Executive Director Missile RD&E Center

1800 - **Reception - Redstone Arsenal Officers' Club**

WEDNESDAY, OCTOBER 22, 1997

0800 - **Announcements**
Ms. Tammy S. Williams, Acting Technical Industrial Liaison,
Technology Integration Office, Missile RD&E Center

0805 **Missile RD&E Center Opportunities**
Dr. Paul L. Jacobs, Associate Director for Technology,
Missile RD&E Center

0845 **Aviation RD&E Center Contract Opportunities**
Mr. Robert V. Kennedy, Associate Director for Technology,
Aviation RD&E Center

0930 - **BREAK**

1000 - **Integrated Materiel Management Center (IMMC)**
Mr. John R. Chapman, Deputy Director, IMMC

1015 - **Redstone Technical Test Center (RTTC)**
Test and Evaluation Command
Ms. Sharon A. Mueller-Myers, Contracts Specialist, RTTC

1035 - **Instrumentation, Targets, and Threat Simulators (ITTS)**
Mr. Henry I. Jehan, Jr. ITTS, U.S. Army Simulation, Training,
and Instrumentation Command

1100 - **Redstone Arsenal Support Activity (RASA)**
COL Duane E. Brandt, Commander, RASA

1115 - **Resource Management Directorate**
Mr. William G. Matthews, Deputy Director,
AMCOM Resource Management Directorate

1135 - **Air Defense Command and Control Systems (ADCCS)**
LTC James M. Althouse, Project Manager, ADCCS

1150 - **LUNCH at the Redstone Officers' Club**
Mr. Laurence H. Burger, Director, U.S. Army Space and
Missile Defense Command's Space and Missile Battle Lab

1340 - **Acquisition Review**
Ms. L. Marlene Cruze, Director,
AMCOM Acquisition Center

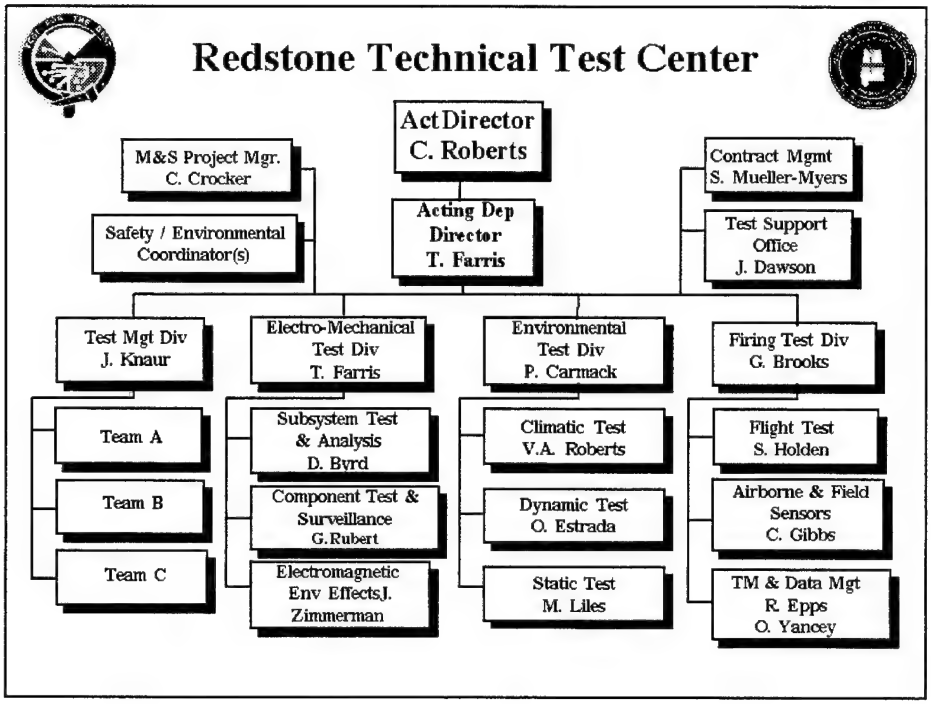
1400 - **Legislative Initiatives**
AMCOM Legal Office

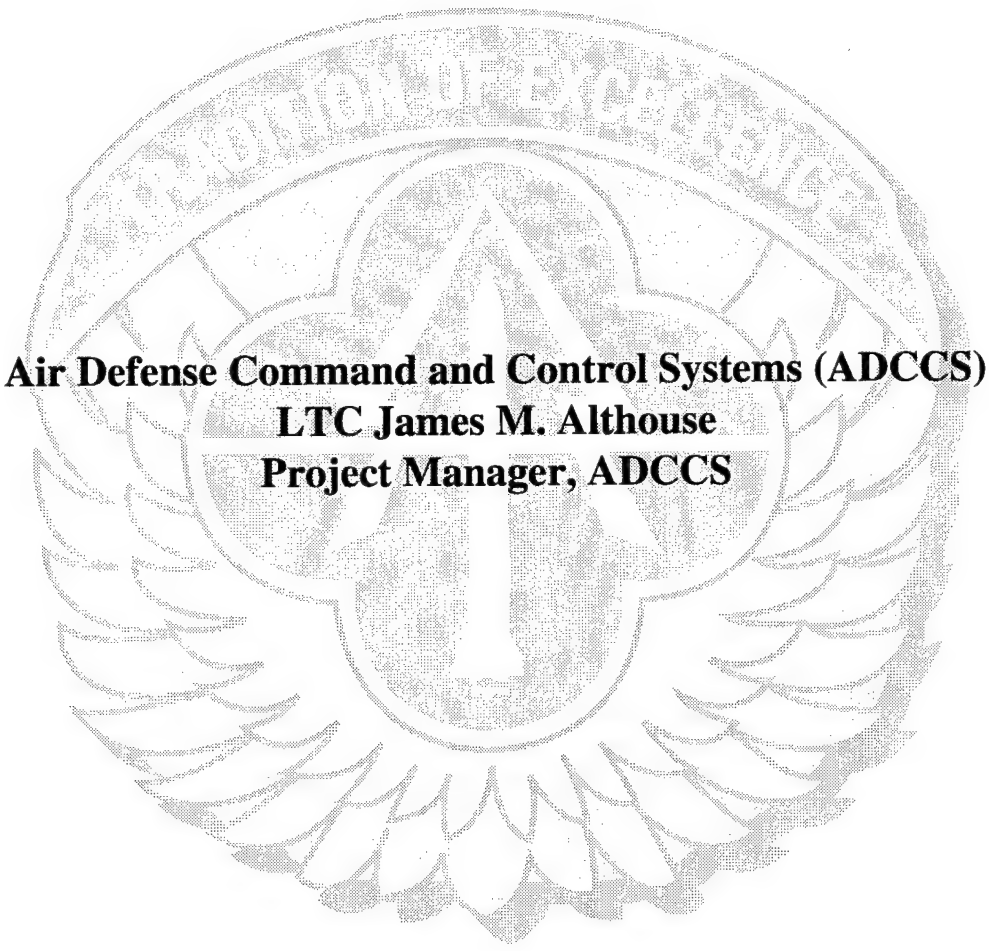
1420 - **BREAK**

1450- **Command Ombudsman**
Mr. John W. Finafrock, AMCOM Ombudsman

1510 - **Small Business Office**
Mr. John F. Nelson, Small Business Advocate,
Small and Disadvantaged Business Utilization Office

1530 - **Question and Answer Session**
Dr. William C. McCorkle, Technical Director for Missiles,
USAAMCOM, and Executive Director Missile RD&E Center

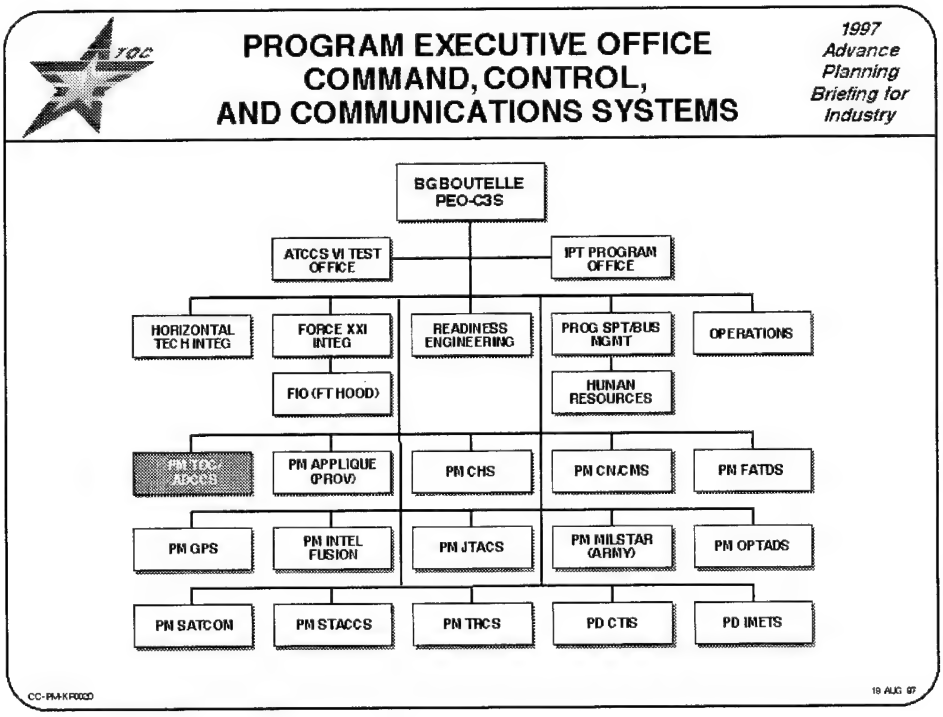

Redstone Technical Test Center
Act Director
C. Roberts
M&S Project Mgr.
C. Crocker
Safety / Environmental
Coordinator(s)
Acting Dep
Director
T. Farris
Contract Mgmt
S. Mueller-Myers
Test Support
Office
J. Dawson
Test Mgt Div
J. Knaur
Team A
Team B
Team C
Electro-Mechanical
Test Div
T. Farris
Subsystem Test
& Analysis
D. Byrd
Component Test &
Surveillance
G.Rubert
Electromagnetic
Env Effects,J.
Zimmerman
Environmental
Test Div
P. Carmack
Climatic Test
V.A. Roberts
Dynamic Test
O. Estrada
Static Test
M. Liles
Firing Test Div
G. Brooks
Flight Test
S. Holden
Airborne & Field
Sensors
C. Gibbs
TM & Data Mgt
R. Epps
O. Yancey



Air Defense Command and Control Systems (ADCCS)

LTC James M. Althouse
Project Manager, ADCCS


TOC
1997 ADVANCE PLANNING
BRIEFING
FOR INDUSTRY


TOC
PROGRAM EXECUTIVE OFFICE
COMMAND, CONTROL,
AND COMMUNICATIONS SYSTEMS
1997
Advance
Planning
Briefing for
Industry
BG BOUTELLE
PEO-C3S
ATCCS VI TEST OFFICE
IPT PROGRAM OFFICE
HORIZONTAL TECH INTEG
FORCE XXI INTEG
READINESS ENGINEERING
PROG SPT/BUS MGMT
OPERATIONS
FIO (FT HOOD)
HUMAN RESOURCES
PM TOC/ AFATDS
PM APPLIQUE (PROV)
PM CHS
PM CN/CMS
PM FATDS
PM GPS
PM INTEL FUSION
PM JTACS
PM MILSTAR (ARMY)
PM OPTADS
PM SATCOM
PM STACCS
PM TRCS
PD CTIS
PD IMETS
CC-PM-KP0020
18 AUG 97

BUILDING BLOCKS

1997 Advance Planning Briefing for Industry

COMMON HARDWARE AND PERIPHERALS

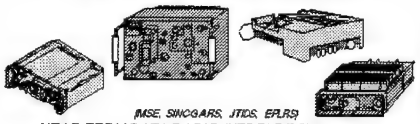
CHS I
- TRANSPORTABLE COMPUTER UNIT
- LIGHTWEIGHT COMPUTER UNIT
- HANDHELD TERMINAL UNIT

CHS II
- V1 AND V2 AVAILABLE NOW
- HIGH CAPACITY COMPUTER UNIT
- HANDHELD TERMINAL UNIT

COMMONSOFTWARE

- ARMY BATTLE COMMAND SYSTEMS (ABCS) BATTLEFIELD FUNCTIONAL AREA (BFA) APPLICATION
- JOINT COMMON OPERATING ENVIRONMENT (JCOE)
- COMMERCIAL OFF-THE-SHELF SOFTWARE (COTS)
- COMMERCIAL STANDARDS AND PROTOCOLS *(e.g., TCP/IP, CLIENT-SERVER)*

ARMY STANDARD COMMUNICATIONS

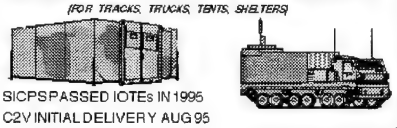


(MSE, SINCGARS, JTIDS, EPLRS)

- NEAR-TERM DATA RADIO (NTDR) FIRST USED FOR DIVISION ADVANCED WARFIGHTING EXPERIMENT (DAWE)
- EXISTING SYSTEMS BEING IMPROVED

STANDARD INTEGRATED COMMAND POST SHELTERS

(FOR TRACKS, TRUCKS, TENTS, SHELTERS)



- SICPS PASSED IOTEs IN 1996
- C2V INITIAL DELIVERY AUG 95

CC-PM-IM001E

15 OCT 97

PM TOC PROGRAMS

1997 Advance Planning Briefing for Industry

CINCTMD CELLS

AVIATION-AVTOC

LIGHT INF TOC (BDE/BN)

ARCENT ADAC2

FORCE XXI

ADA BRIGADES

31st

35th

6th

108th

11th

94th

69th

III CORPS

USARSPACE

TMD FPTOC

3rd ARMY "LUCKY MAIN"

AAMDC

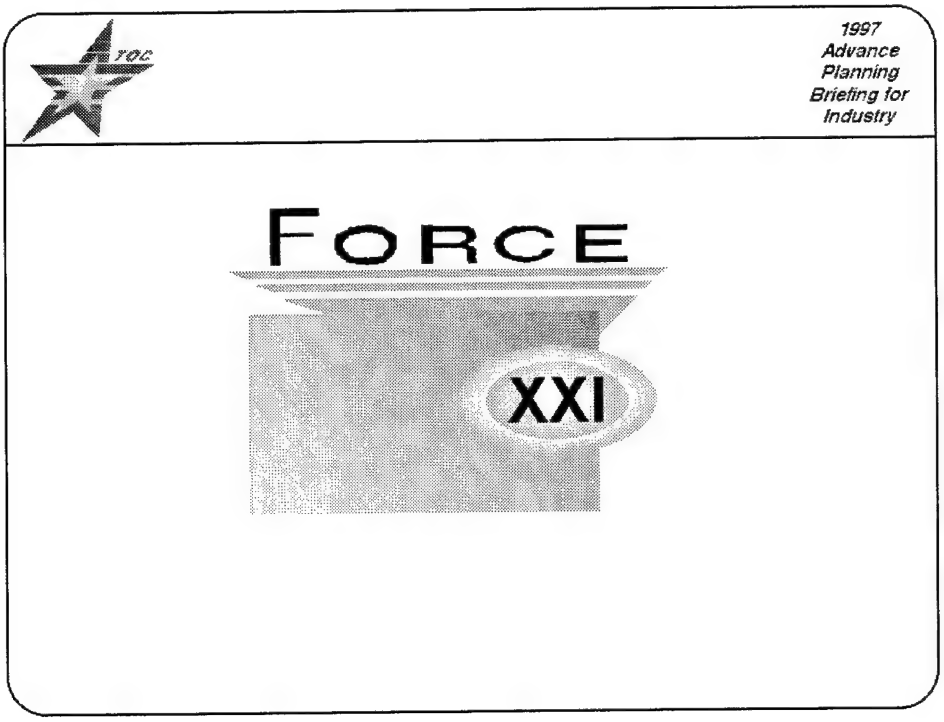
XVIII ABN CORPS BCD & "DRAGON MAIN"

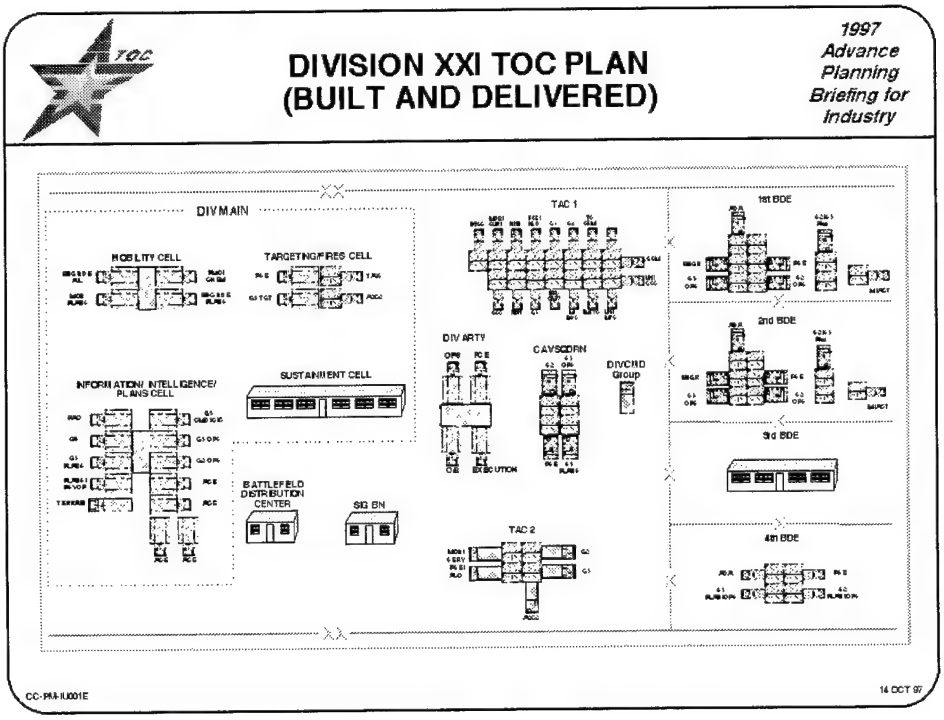
SOUTHCOM

8th ARMY

CC-PM-IG004D

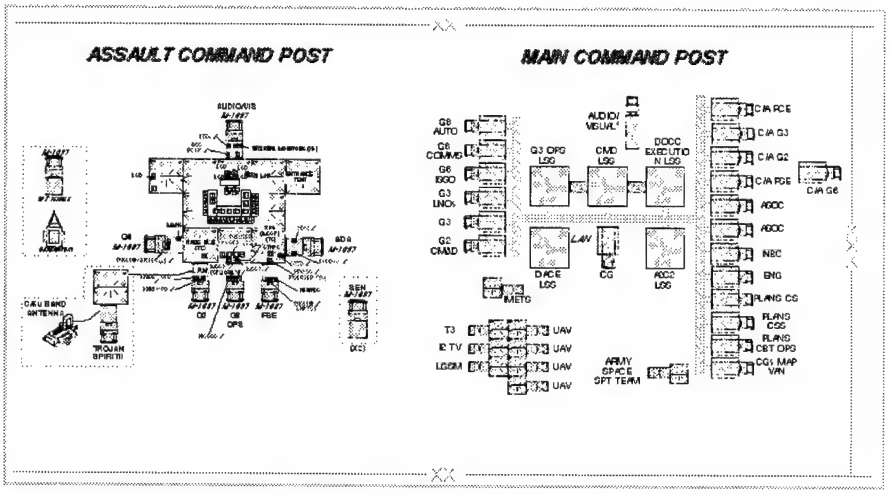
14 OCT 97


TOC
1997
Advance
Planning
Briefing for
Industry
FORCE
XXI


TOC
DIVISION XXI TOC PLAN
(BUILT AND DELIVERED)
1997
Advance
Planning
Briefing for
Industry
DIVMAIN
MOBILITY CELL
TARGETING/FIRES CELL
INFORMATION/ INTELLIGENCE/
PLANS CELL
SUSTAINMENT CELL
BATTLEFIELD
DISTRIBUTION
CENTER
SIG BN
TAC 1
DIV ARTY
CAVSQDRN
DIVCMD
Group
TAC 2
1st BDE
2nd BDE
3rd BDE
4th BDE
CC-PAM-IU001E
14 OCT 97

III CORPS SLICE (BUILT AND DELIVERED)

1997 Advance Planning Briefing for Industry

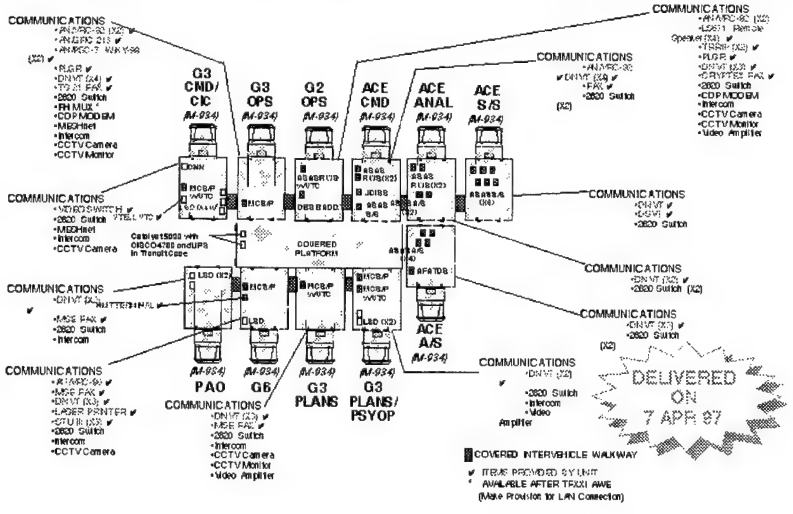


CC-PMI-IL0011

14 OCT 97

SYSTEMS ARCHITECTURE 4ID INFORMATION/ INTELLIGENCE/PLANS CELL (IIP)

1997 Advance Planning Briefing for Industry



AA008C

30 SEP 97

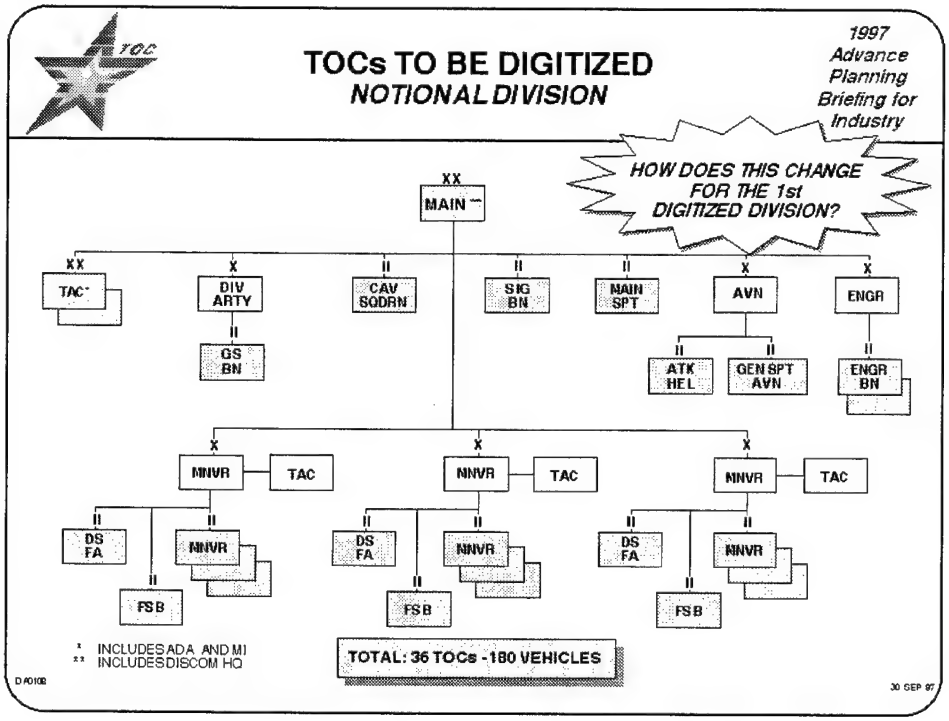
1997
Advance
Planning
Briefing for
Industry

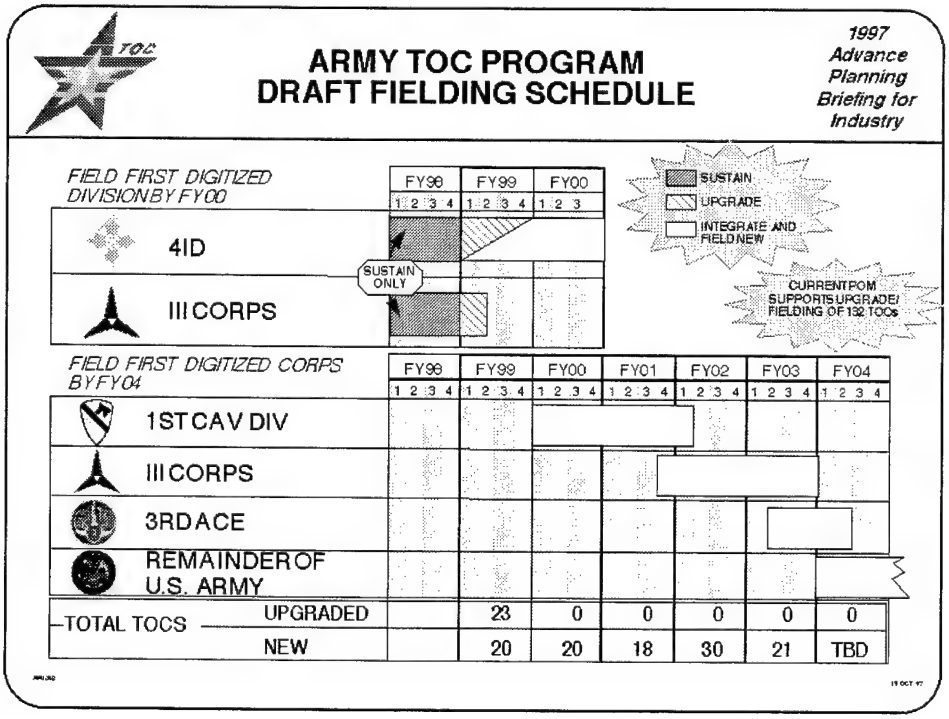
ARMY TOC PROGRAM

ARMY TOC PROGRAM MISSION

1997
Advance
Planning
Briefing for
Industry

DEVELOP AND FIELD OPERATIONALLY EFFECTIVE AND SUPPORTABLE INTEGRATED, DIGITIZED TACTICAL OPERATIONS CENTERS THAT SATISFY THE FUNCTIONAL INFORMATION REQUIREMENTS OF COMMANDERS AND STAFFS AT ALL ECHELONS OF COMMAND


TOCs TO BE DIGITIZED
NOTIONAL DIVISION
1997 Advance Planning Briefing for Industry
HOW DOES THIS CHANGE FOR THE 1st DIGITIZED DIVISION?
XX MAIN
XX TAC*
X DIV ARTY
II GS BN
II CAV SQDRN
II SIG BN
II MAIN SPT
X AVN
II ATK HEL
II GEN SPT AVN
X ENGR
II ENGR BN
X MNVR
TAC
II DS FA
II FSB
II MNVR
X MNVR
TAC
II DS FA
II FSB
II MNVR
X MNVR
TAC
II DS FA
II FSB
II MNVR
* INCLUDES ADA AND MI
** INCLUDES DISCOM HQ
TOTAL: 36 TOCs - 180 VEHICLES
30 SEP 97


ARMY TOC PROGRAM
DRAFT FIELDING SCHEDULE
1997 Advance Planning Briefing for Industry
FIELD FIRST DIGITIZED DIVISION BY FY00
FY98 1 2 3 4
FY99 1 2 3 4
FY00 1 2 3
4ID
III CORPS
SUSTAIN ONLY
SUSTAIN
UPGRADE
INTEGRATE AND FIELD NEW
CURRENT POM SUPPORTS UPGRADE/ FIELDING OF 132 TOCs
FIELD FIRST DIGITIZED CORPS BY FY04
FY98 1 2 3 4
FY99 1 2 3 4
FY00 1 2 3 4
FY01 1 2 3 4
FY02 1 2 3 4
FY03 1 2 3 4
FY04 1 2 3 4
1ST CAV DIV
III CORPS
3RD ACE
REMAINDER OF U.S. ARMY
TOTAL TOCS
UPGRADED 23 0 0 0 0 0
NEW 20 20 18 30 21 TBD
19 OCT 97

ARMY TOC PROGRAM
FUTURE TASKS

1997 Advance Planning Briefing for Industry

- SYSTEM DESIGN STUDIES
- SYSTEM ENGINEERING
- GFE/CFE INTEGRATION/ASSEMBLY (I.E., CHS, SICPS, HMMWV, COMMO)
- CABLE/RACK FABRICATION/ASSEMBLY AND SHELTER MODIFICATION
- SYSTEM DOCUMENTATION/CONFIGURATION MANAGEMENT
- SYSTEM TEST AND EVALUATION
- TRAINING
- FIELDING SUPPORT
- CONTRACTOR LOGISTICS SUPPORT

D0266

14 OCT 97

ARMY TOC PROGRAM
CONTRACT OPPORTUNITIES

1997 Advance Planning Briefing for Industry

OBJECTIVE: FIELD THE FIRST DIGITIZED DIVISION BY FY00 AND FIRST DIGITIZED CORPS BY FY04

TENTATIVE PLAN:

FY98 SUSTAIN DIVISION AWE - CONFIGURED TOCs

FY99-00 REFURBISH DIVISION AWE TOCs AND COMPLETE INTEGRATION OF 4th ID

FY00-04 INITIATE POM-SUPPORTED ARMY TOC PROGRAM TO DEVELOP AND FIELD FIRST DIGITIZED CORPS (III CORPS, 1CD, 3ACR)

- 93 TOCs
- 369 VEHICLES
- AWARD 1ST QTR FY00

**ASSUMES FUNDING*

A0426

15 OCT 97

KEY HARDWARE RELATED TECHNOLOGIES

1997 Advance Planning Briefing for Industry

NEED INDUSTRY'S HELP IN:

- DISPLAYS
- VIDEO SYSTEMS (E.G. CAMERAS/CLOSED CAPTION TELEVISION (CCTV)
  - WIRELESS LANs & INTERCOMS
  - ROUTERS & SWITCHES
    - POWER GENERATION
    - MEDIA STORAGE
      - OTHER NON-DEVELOPMENTAL ITEM (NDI) OR COMMERCIAL-OFF-THE-SHELF (COTS)

PLANNING A TECHNOLOGY SYMPOSIUM

LOW COST, RECONFIGURABLE, RELIABLE, COMMERCIAL – JOINT TECHNICAL ARCHITECTURE -ARMY COMPLIANT

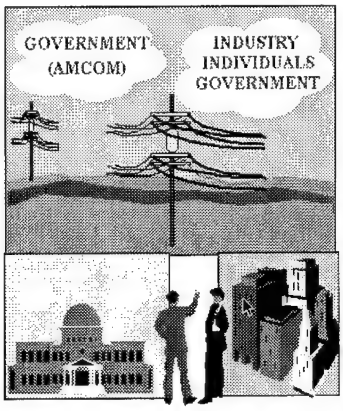
A0427

15 OCT 97

Command Ombudsman
Mr. John W. Finafrock
AMCOM Ombudsman

U.S. ARMY AVIATION AND MISSILE COMMAND

COMMAND OMBUDSMAN



MR. JOHN W. FINAFROCK, AMCOM OMBUDSMAN

U.S. ARMY AVIATION AND MISSILE COMMAND

ATTN: AMSAM-OB

BUILDING 5300, ROOM 5145

REDSTONE ARSENAL, AL 35898-5000

1 OF 8

U.S. ARMY AVIATION AND MISSILE COMMAND

WHAT'S AN OMBUDSMAN?

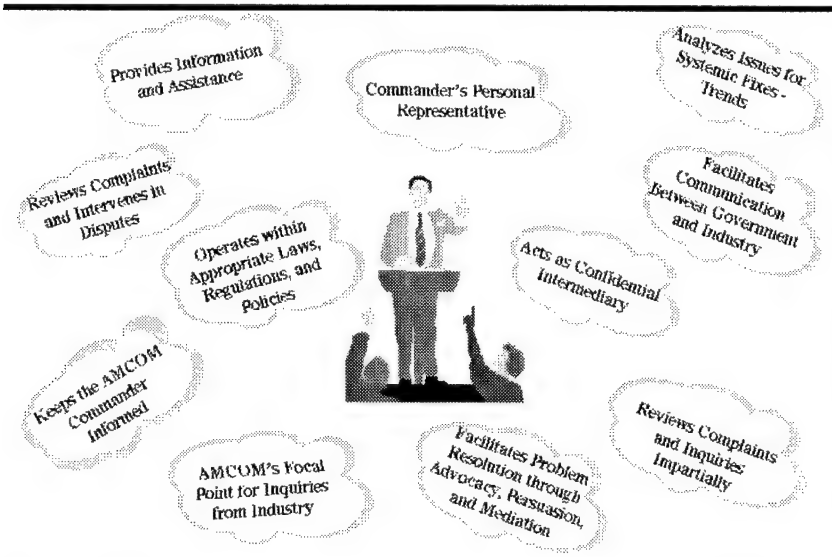
"OMBUDSMAN: AN INDEPENDENT SENIOR GOVERNMENT OFFICIAL WITH RESPONSIBILITY TO RECEIVE AND ACT ON INQUIRIES AND COMPLAINTS CONCERNING THE MSC, WHICH ARE BROUGHT TO HIS ATTENTION BY INDUSTRY, THE PRIVATE SECTOR, OR INTERNAL GOVERNMENT SOURCES"

U.S. ARMY MATERIEL COMMAND

2 OF 8

U.S. ARMY AVIATION AND MISSILE COMMAND

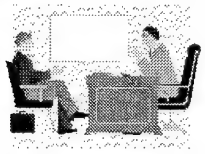
THE COMMAND OMBUDSMAN'S CHARTER



3 OF 8

U.S. ARMY AVIATION AND MISSILE COMMAND

"GENERAL" INFORMATION



Confidential Intermediary Approach

Current Office Location Conducive to Contacts - - - "Discreetly Walk Off Hallway"
Building 5300, Room 5145 (First Floor)

Cases Generally Fall into These Categories:

- **30-40% Solicitations**
- **20-30% Contracts**
- **15-25% Business Opportunities**
- **5-8% Personal Issues**

Mix Varies Over Time

4 OF 8


U.S. ARMY AVIATION AND MISSILE COMMAND
AMCOM OMBUDSMAN CASE ACTIVITY
STATEMENTS OF WORK
TRACKING DISBURSEMENTS
TECHNICAL DATA PACKAGES
SOLICITATION CLOSING DATES
LATE PAYMENT ISSUES
INTERVENE WITH OTHER GOVERNMENT ORGANIZATIONS
FACILITATE INDUSTRY MARKETING CAPABILITIES
FIRST ARTICLE TEST
MILITARY SPECIFICATIONS AND STANDARDS
ORAL SOLICITATION PROCESS
RESOLVE PERSONAL ISSUES
BEST VALUE CONTRACTING
PROVIDE POINTS OF CONTACT
QUALITY VERIFICATION SAMPLE
5 OF 8


U.S. ARMY AVIATION AND MISSILE COMMAND
OMBUDSMAN ISSUES/CASE LOAD TRENDS
SIC CODES
BEST VALUE: BAFO = PRICE COMPETITION
MULTIPLE AWARDS "COMPETITION?"
PRIVATIZATION - QDR RESULTS INQUIRIES
HOW CAN SDB/ SADBU/SB/WOMAN-OWNED BUSINESSES WIN PRIME CONTRACTS UNDER ACQUISITION REFORM?
USE OF ATCOM PATS IN AMCOM - POSSIBILITY OF AMCOM PATS?
ORAL PROPOSALS - DISCUSSIONS - PRESENTATIONS
MARKETING INTERESTS - A76 STUDY CAPABLE FIRMS
"AWARD W/OUT DISCUSSIONS!" - MAKE COMPETITIVE RANGE MEANINGFUL ON SUPPORT SERVICES CONTRACTS
CONSPIRACY THEORIES ABOUND - SIC CODE CHANGES TARGETED - COMPLAIN OR PROTEST AND YOU ARE BLACKBALLED
6 OF 8

U.S. ARMY AVIATION AND MISSILE COMMAND

INDUSTRY DAYS TOPICS

- "ANNUAL" EVENT
- EVENING ICE BREAKER FOLLOWED BY A FULL DAY SESSION

7 OF 8

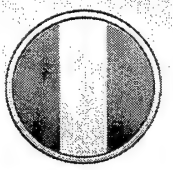
U.S. ARMY AVIATION AND MISSILE COMMAND

OMBUDSMAN PROGRAM

AMC OMBUDSMAN:	MR. LEWIS J. ASHLEY	VOICE: (703) 617-8252 / DSN 767-8252 DATAFAX: (703) 617-1829 / DSN 767-8219 E-MAIL: amcob@alexandria-emh1.army.mil
IOC OMBUDSMAN:	MR. CRAIG COLLEDGE	VOICE: (309) 782-5880/5379 / DSN 793-5880/5279 DATAFAX: (309) 782-8469 / DSN 793-8469 E-MAIL: amsio-br@ria-emh2.army.mil
CECOM OMBUDSMAN:	MS. KATHLEEN DAVIS	VOICE: (908) 532-3320/1467 / DSN 992-3320/1467 DATAFAX: (908) 532-6020 / DSN 992-6020 E-MAIL: davisk@doim6.monmouth.army.mil
AMCOM OMBUDSMAN:	MR. JOHN FINAFROCK	VOICE: (205) 876-6659 / DSN 746-6659 DATAFAX: (205) 955-7753 / DSN 645-7753 E-MAIL: Finafrock-JW@redstone.army.mil
TACOM OMBUDSMAN:	MS. ANN NEWELL	VOICE: (810) 574-5274/7662 / DSN 786-5274/7662 DATAFAX: (810) 574-5011/5097/DSN 786-5011/5097 E-MAIL: newella@cc.tacom.army.mil

8 OF 8

THE ARMY AFTER NEXT PROJECT



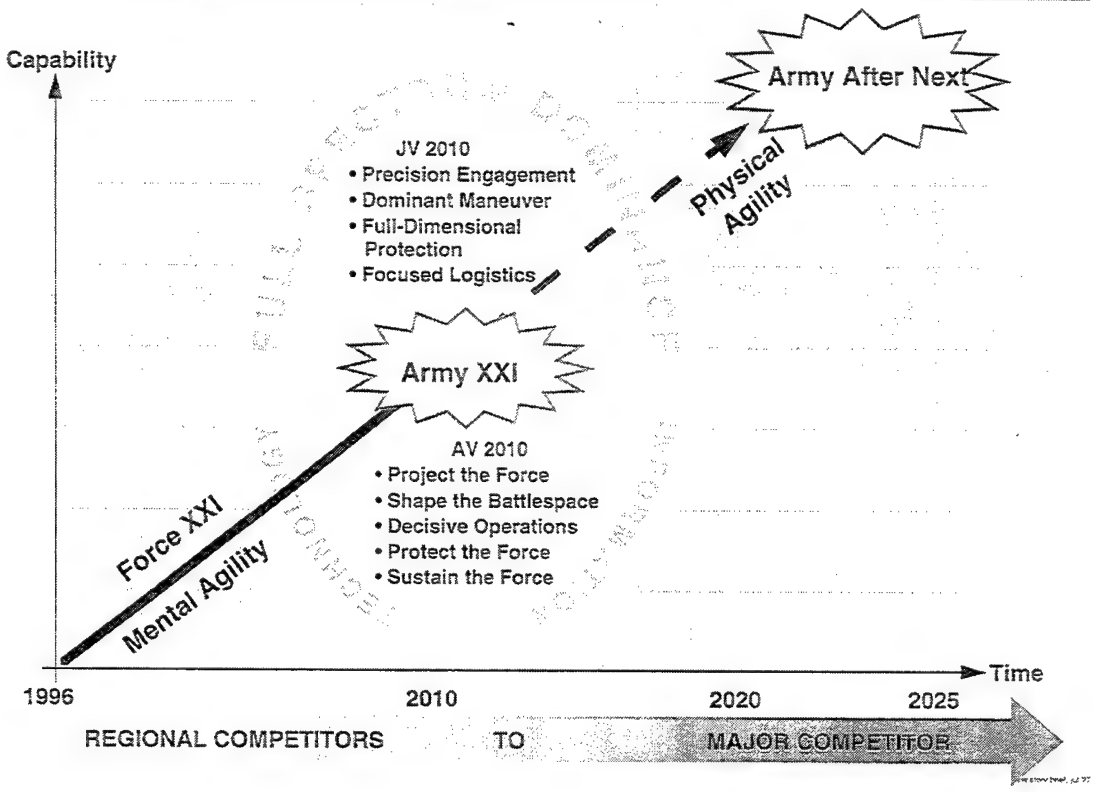
KNOWLEDGE *and* SPEED

Deputy Chief of Staff for Doctrine
United States Army Training and Doctrine Command

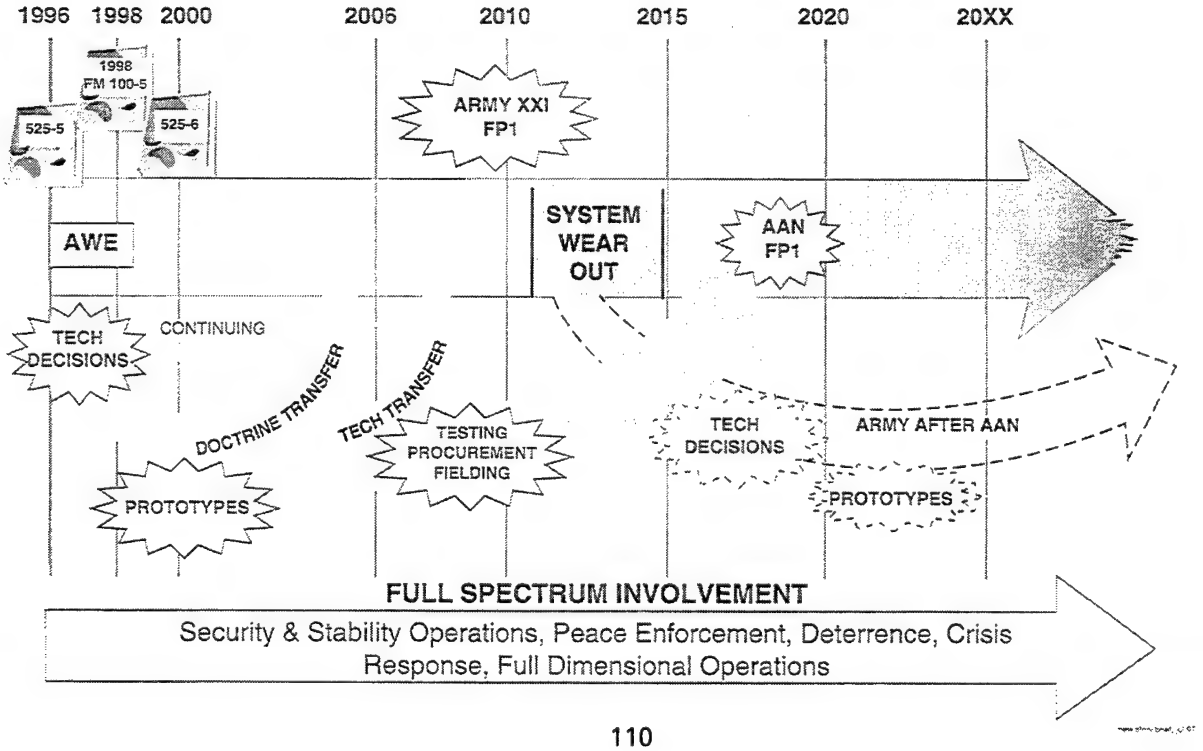
PROJECT AAN MISSION STATEMENT

Conduct broad studies of warfare to about the year 2025 to frame issues vital to the development of the U.S. Army after about 2010 and provide those issues to senior Army leadership in a format suitable for integration into TRADOC combat development programs.

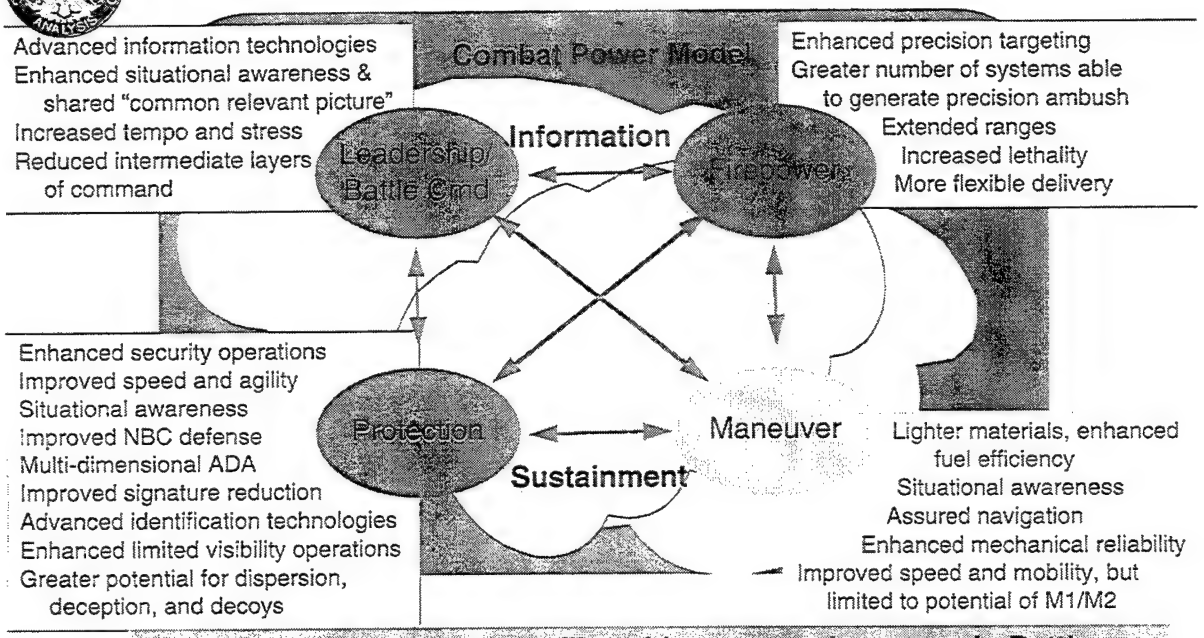
THE PATH TO AAN MUST PASS THROUGH FORCE XXI



INFLUENCES ON THE ARMY'S FUTURE – GETTING TO AAN AND BEYOND



The Evolving Elements of Combat Power



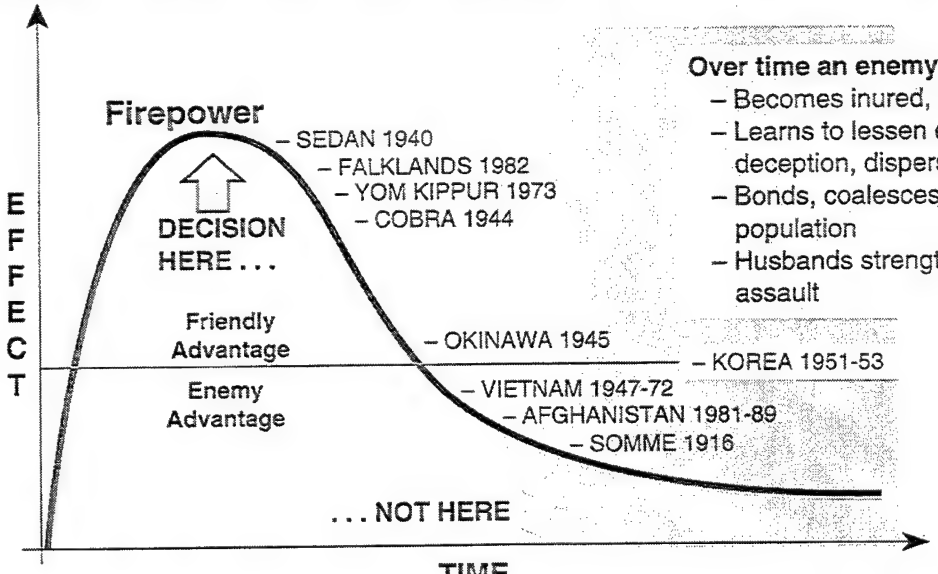
- **Information technologies will enable quantum increases in Battle Command, especially with introduction of anticipatory planning**
- **Geometric increases in firepower and protection effects are expected**

but

-- only arithmetic increases in maneuver effects are envisioned

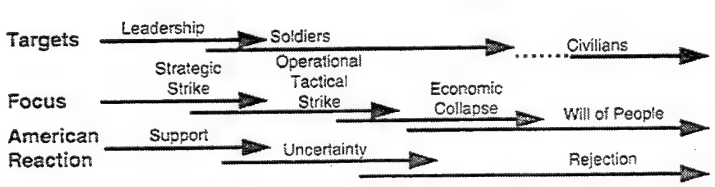
7

FIREPOWER-CENTERED APPROACH: UNNECESSARY RISK. FIREPOWER EFFECT DECLINES OVER TIME



Over time an enemy:

- Becomes inured, less intimidated
- Learns to lessen effects through deception, dispersion
- Bonds, coalesces with leaders, population
- Husbands strength, prepares for assault

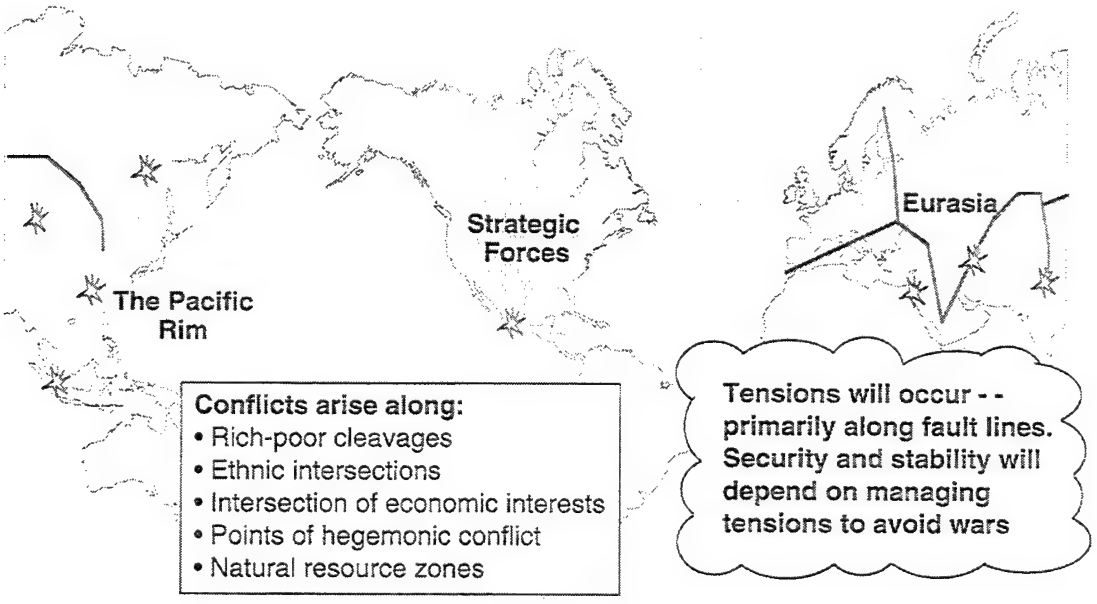


Provides enemy the advantage of concentrating resources to counter only one dimension of threat

AAN FUTURES RESEARCH FOCUSES INITIALLY ON FOUR AREAS CIRCA 2025:

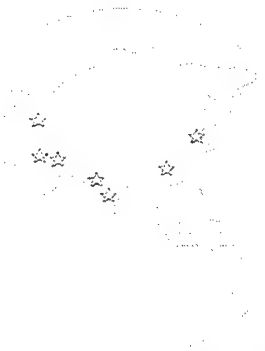
- Probable geopolitical realities: **Ensure stability across the spectrum**
- Evolving military art: **Balance Precision Engagement and Dominant Maneuver**
- Technology: **Speed to exploit Information Dominance**
- Human and organizational behavior: **Mature, cohesive force operating at the limits of human cognition**

GEOPOLITICS of 2025



Eurasia and Pacific Rim . . . where fault lines and interests will most likely intersect

SEVEN YEARS into the 21st CENTURY WE SEE a RISING PATTERN of ASYMMETRY



Among our potential foes there's a common, almost spontaneous movement to posture themselves for asymmetric competition

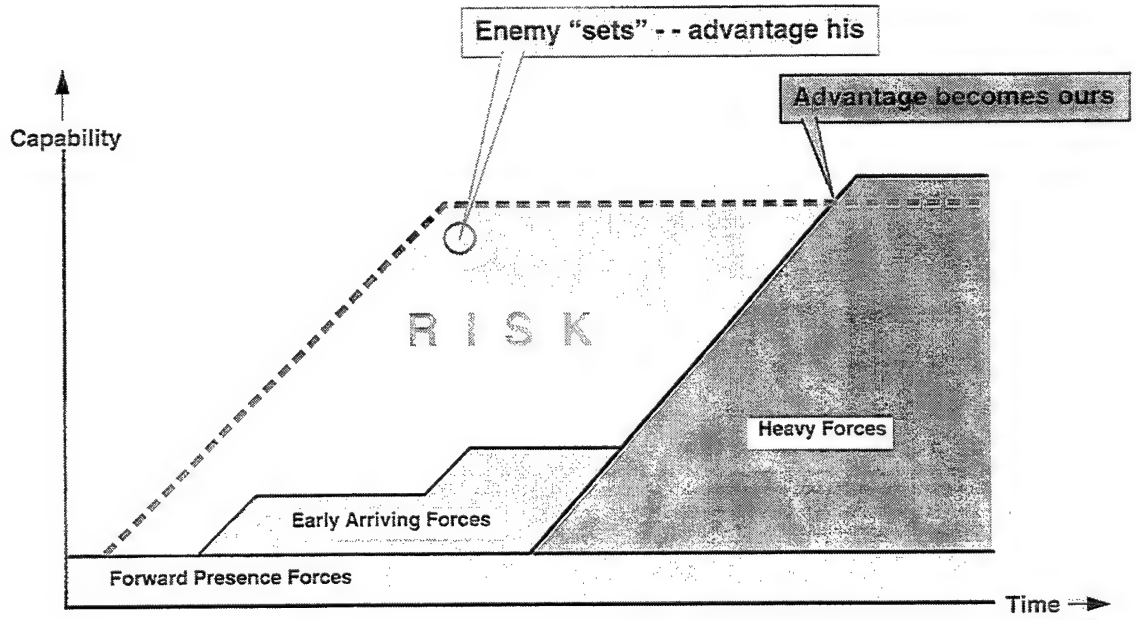
- **Streamlining current forces**
- **Education/professionalization**
- **Regional focus on local hegemony**
- **Shifting operational concepts –deflect air and sea power to preserve standing armies**

	Army	Asymmetric Investments
India	980,000	
North Korea	1,000,000	
Pakistan	520,000	
Iran	345,000	
Iraq	350,000	
Russia	670,000	
China	2,200,000	

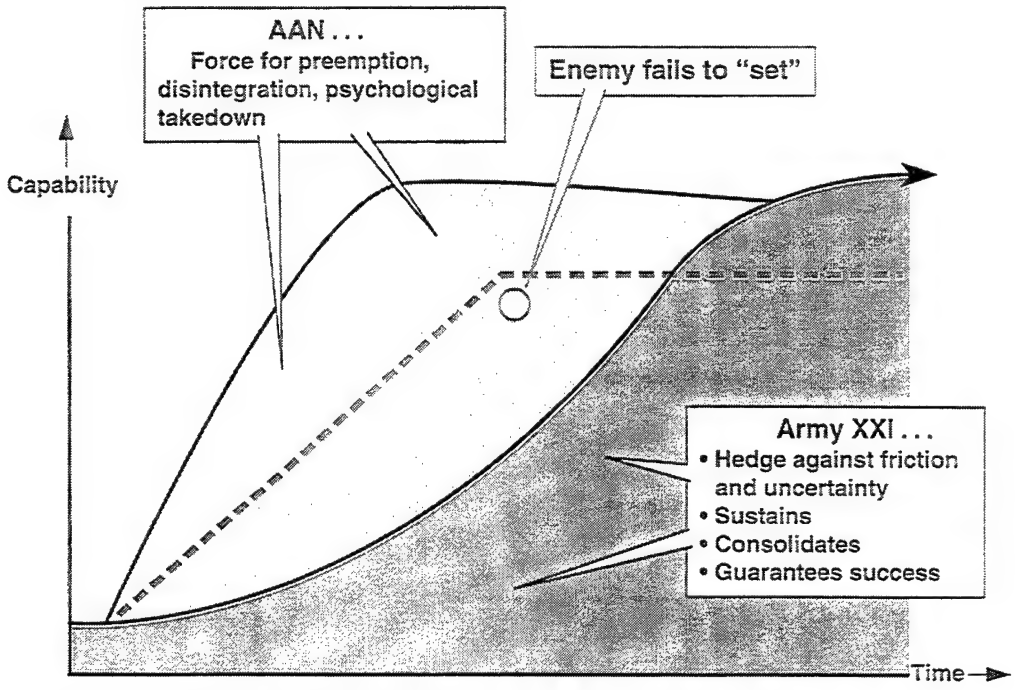
Legend:

- Missiles (Ballistic and Cruise)
- Air Defense
- Submarines
- C⁴I/IW
- WMD
- Fighters
- Missile Ships

Power Projection Today: Slow Arrival Allows Enemy to "Set": Reaction *vice* Preemption

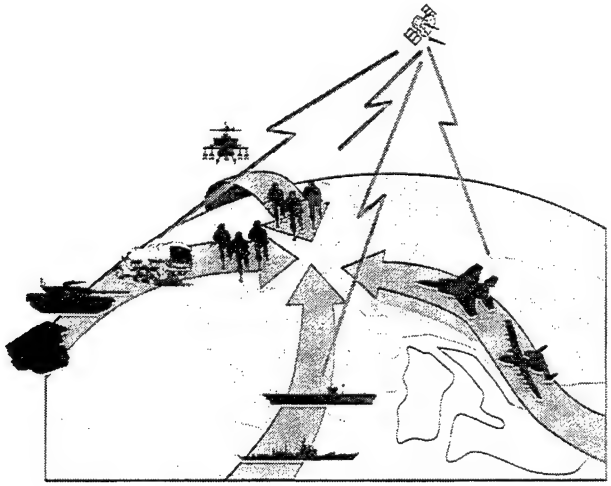


Power Projection in 2020: Preemption *vice* Reaction



Air and land power projected as a balanced force package

Global Strategic Maneuver - - circa 2025



- Power projection from all points on the globe converge and paralyze enemy
- Simultaneous convergence of overwhelming land, air, space, and sea forces
- Overseas presence quickens global maneuver
- Being "First with the Most" reduces risk and begins process of psychological domination

Seize initiative,
build momentum . . . an image of uncontestable competence and unstoppable force

The Goal: A globally self-deployable force capable of striking directly at strategic and operational centers of gravity

Notions about "Air Mechanization" Continue to Evolve

CH-53
Range: 185 km radius
Fuel for ave insert: 1017 gals
Lift: 30,000 lbs (2 Wiesels)
Wiesel
Crew: 2 Wt: 7900 lbs
Armament: TOW, MK-20,

UH-60L
Range: 584 km radius
Fuel for ave insert: 250 gals
Lift: 8,000 lbs
TACAWS
Crew: 2 Wt: 8,000 lbs
Armament: TACAWS

1978 - Some evidence that Soviets orchestrated successful air mechanized maneuver against Somalis in Ogadan.

1981 - Brigadier Simpkin proposes air mechanization concept based on beliefs that

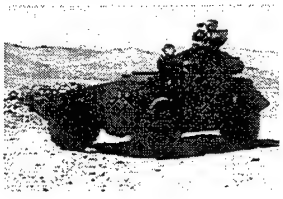
- increases in mobility will be achieved "more easily and economically...by getting off the ground"
- highly mobile element needs an order of magnitude increase in mobility over the bulk of the force, increasing tempo decreases the time for which ground has to be held.
- Rotor is to track as track is to boot

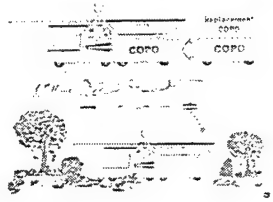
1983 - GEN Von Senger und Etterlin proposes

- need to match "increase in firepower with a significant increase in mobility"
- steps beyond "Air Mobility" to "Air Mechanization"

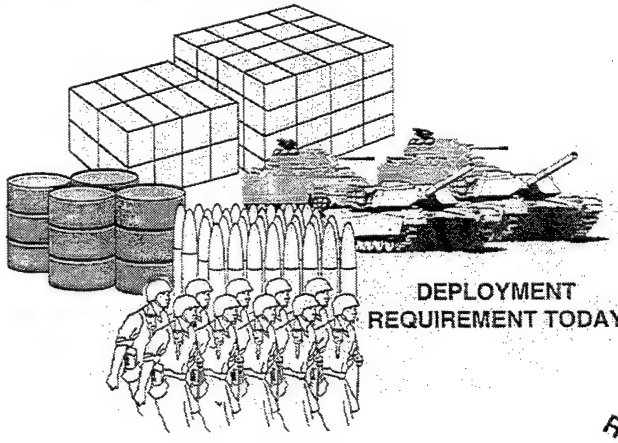
1992 - Col (R) Franz proposes an "air/land vehicle (A/LV) capable of holding ground."

MV-22
Range: 625 km radius
Fuel for ave insert: 425 gals
Lift: 15,000 lbs
Cadillac Gage
Crew: 2 Wt: 15,000 lbs
Armament: 105mm, 7.62, 50 Cal, Tow, MK-20





LOGISTICS: The AAN "Long Pole"

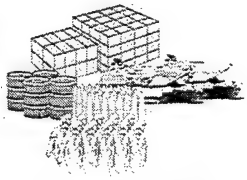


DEPLOYMENT REQUIREMENT TODAY

Reducing the transportation load enables enhanced mobility and facilitates sustainment

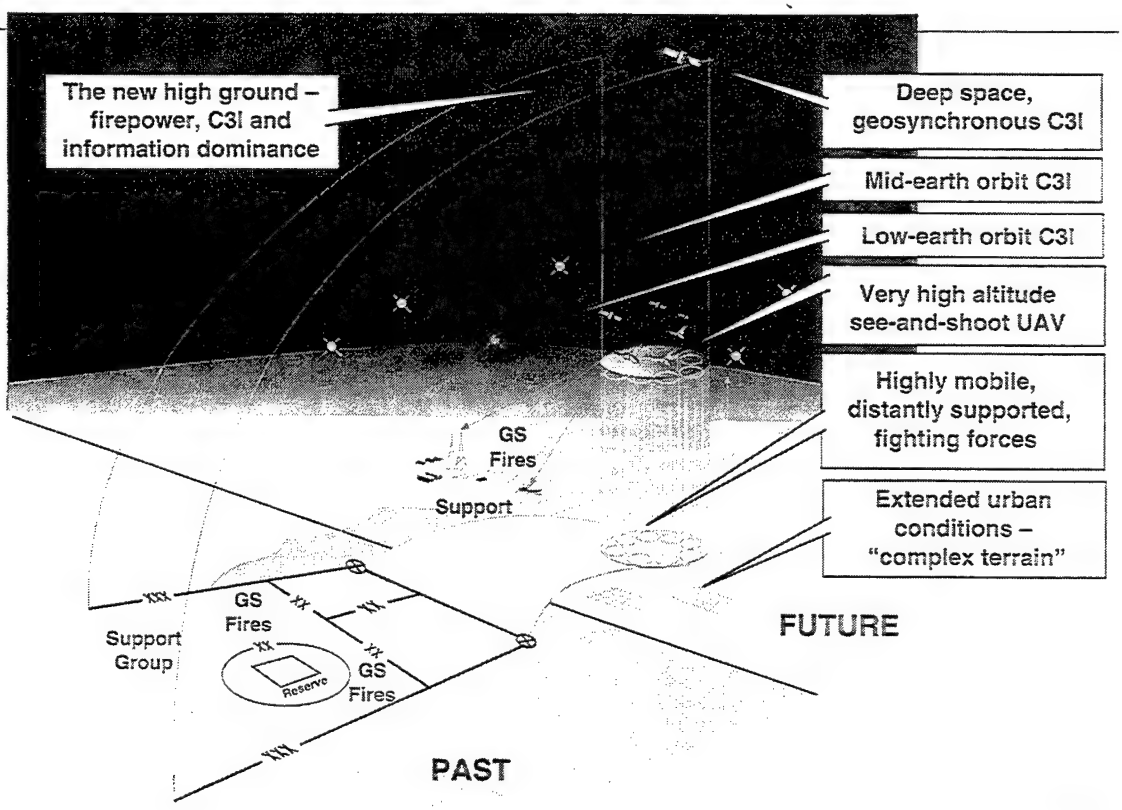
Radical Reduction

Improved strategic deployability critical to achieving Dominant Maneuver and Precision Engagement

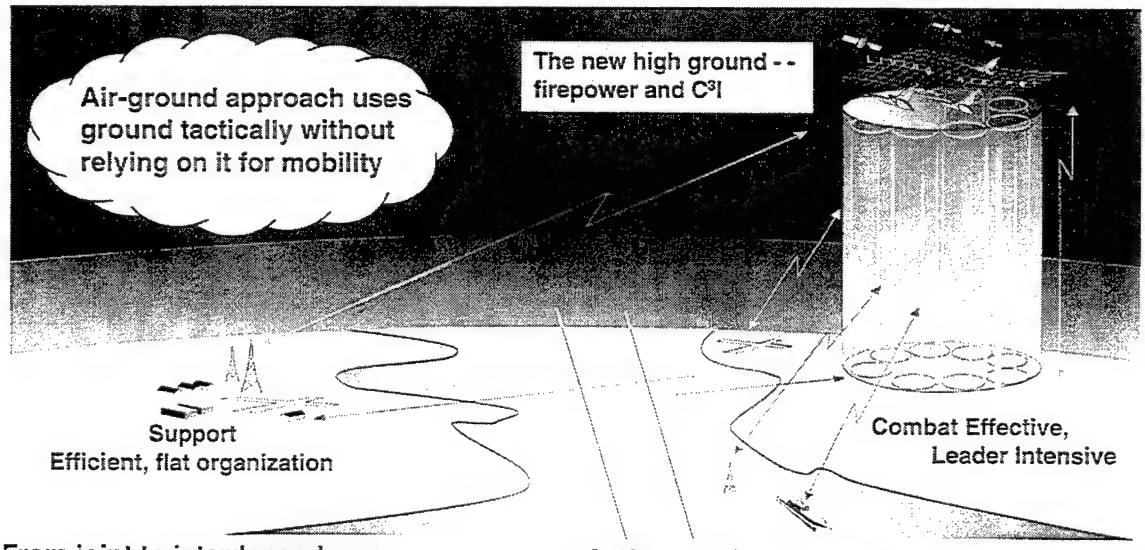


DEPLOYMENT CHALLENGE FOR 2025

AAN – FROM LINEAR TO VERTICAL

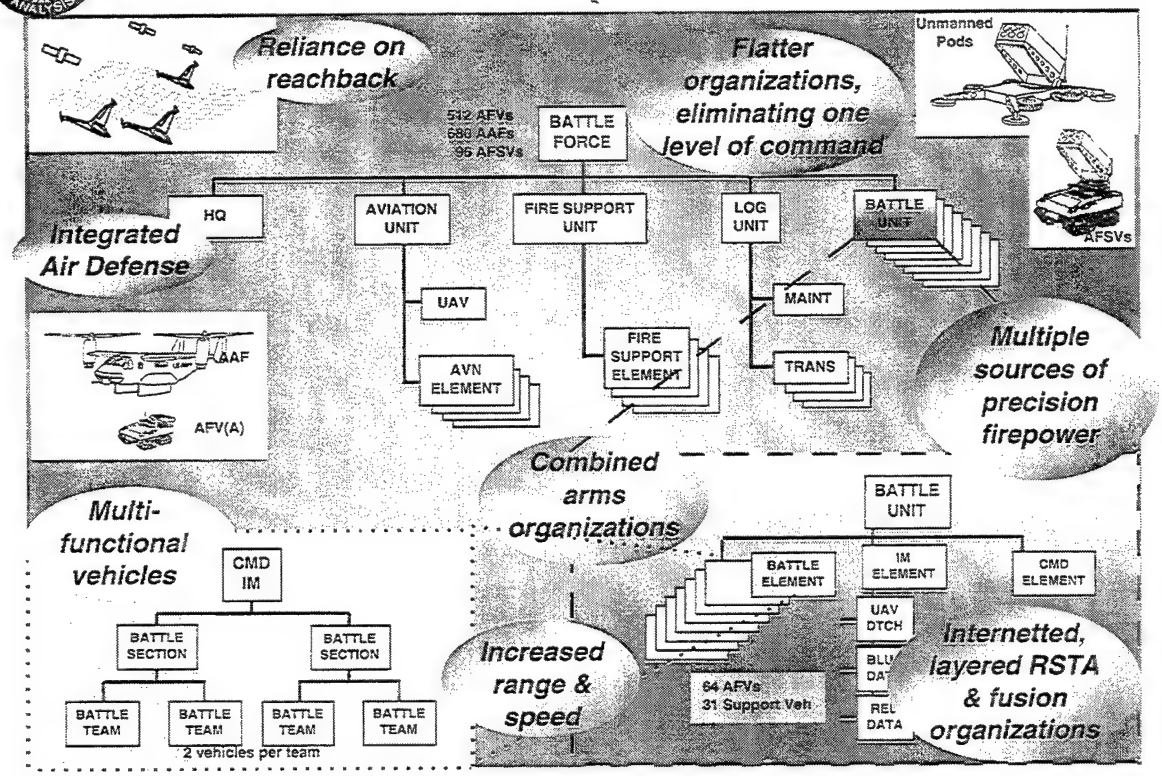


OPERATIONAL CHARACTERISTICS of AAN (20XX)
. . . A BALANCED APPROACH to WARFARE



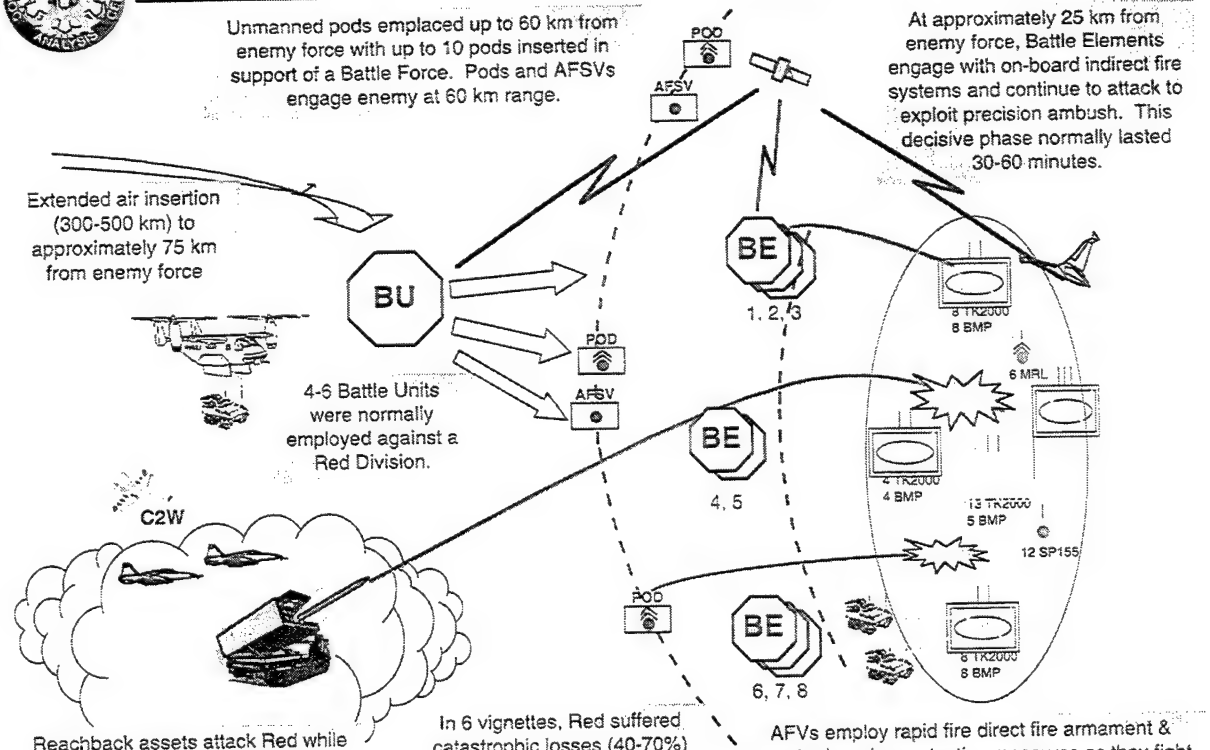
- From joint to interdependence
- Autonomous operations for weeks
- All operating systems resident within battle force
- "Reach out" for combat functions (Fires, C², Logistics)
- Self-protection through movement, organic weapons, low-observables, and situational awareness
- Engage enemy with information, organic, and inorganic weapons
- Pull-Down Data – from the Internet

High Risk Battle Force Organization



10

Tactical Concept for Employment of the Battle Unit



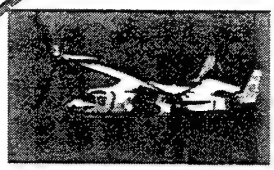
14

Aviation

Attack

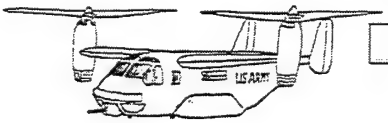
HQ
LCT
Maint
ATK AVN ELEMENT

- 72 Advanced Recon Airframes
- Munitions:
  - 50 mm aerial rockets
  - 20 mm gun turret
  - Advanced ATG/ATA capability
- 500 kilometer tactical radius
- 2100 nautical miles strategic self deployment
- 350 knots maximum speed



- 312 Advanced Airframes
- Lifts three Battle Units and associated fire support and RISTA elements
- 500 kilometer tactical radius
- 2100 nautical miles strategic self deployment
- 350 knots maximum speed

Lift



HQ
LCT
Maint
Maint
LIFT AVN ELEMENT

23

ENABLING AAN: TECHNOLOGIES AND SYSTEMS FOR A BALANCED APPROACH TO WARFARE

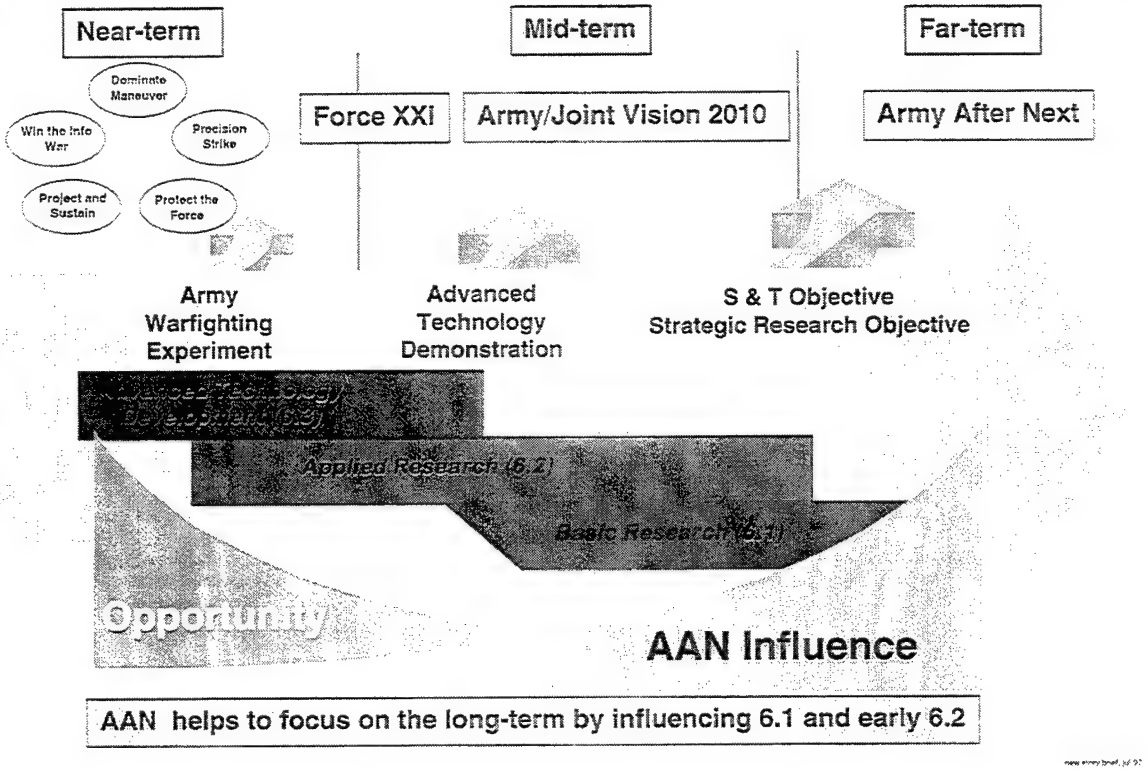
AAN TECHNOLOGY SHORT LIST

- Hybrid Power Systems
- Fuel Efficiency (Reduce consumption by 75%)
- Human Engineering/Cognitive Engineering
- Signature Control (Including Counters)
- Protection Schemes for Land Systems (Including Active Protection)
- Advanced Materials
- Alternative Propellants
- Biological and Chemical Protection, Antidotes, and Vaccines
- Logistics Efficiencies

AAN SYSTEMS SHORT LIST

- Future Groundcraft
- Advanced Airframe
  - Heavy Lift
  - Tactical Utility Lift
- Autonomous and Semi-autonomous
  - Unmanned Systems (Air, Ground, Sensors)
- Advanced Fire Support System
- "Living Internet"

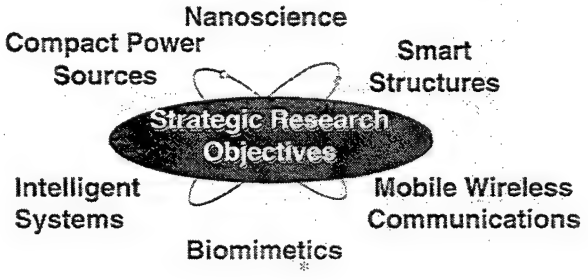
AAN Influence on S&T Investment Strategy



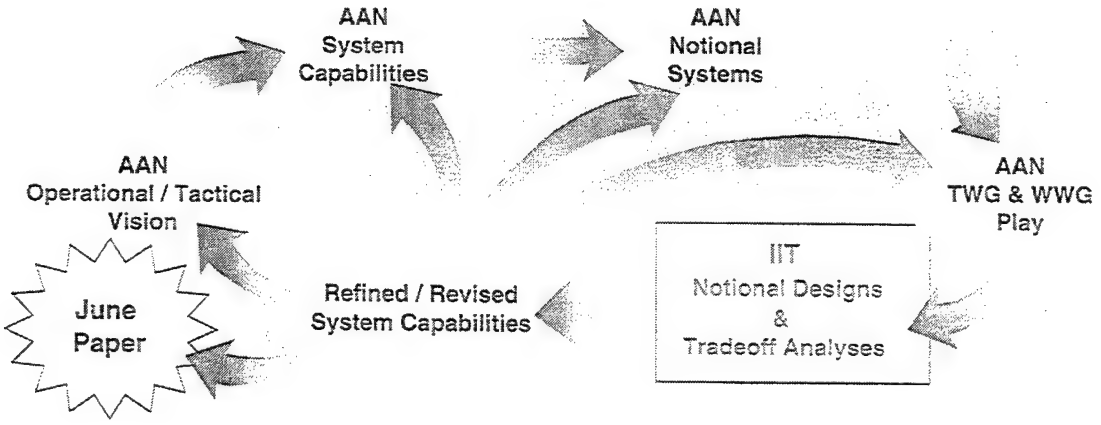
AAN helps to focus on the long-term by influencing 6.1 and early 6.2

Potential Changes to Existing SROs

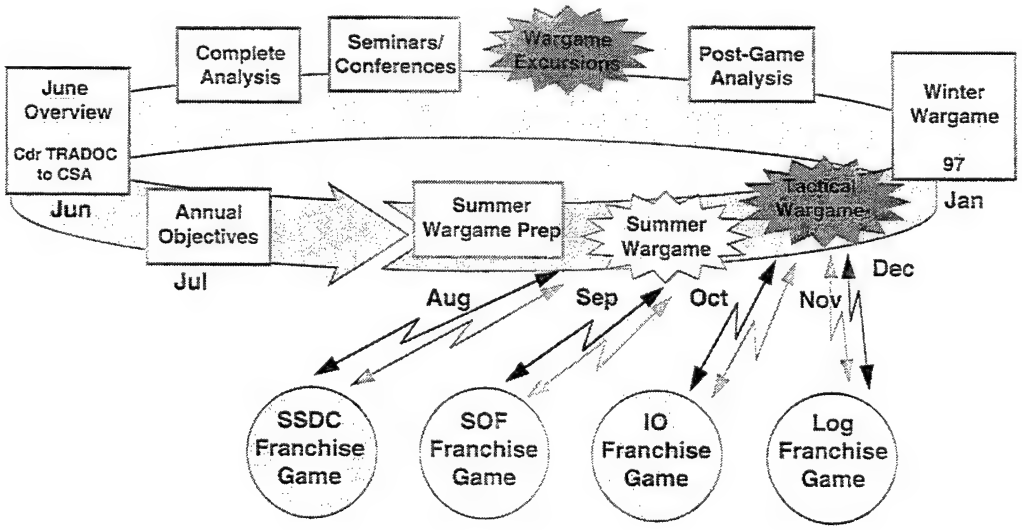
- Expand "Mobile Wireless Communications" to include terrain & environment-independent comms, data management
- Ensure that "Biomimetics" addresses lightweight protective materials
- Address unmanned vehicles/robotics concepts in "Intelligent Systems"



INTEGRATED IDEA TEAMS (IIT): Focus of Army S&T Effort



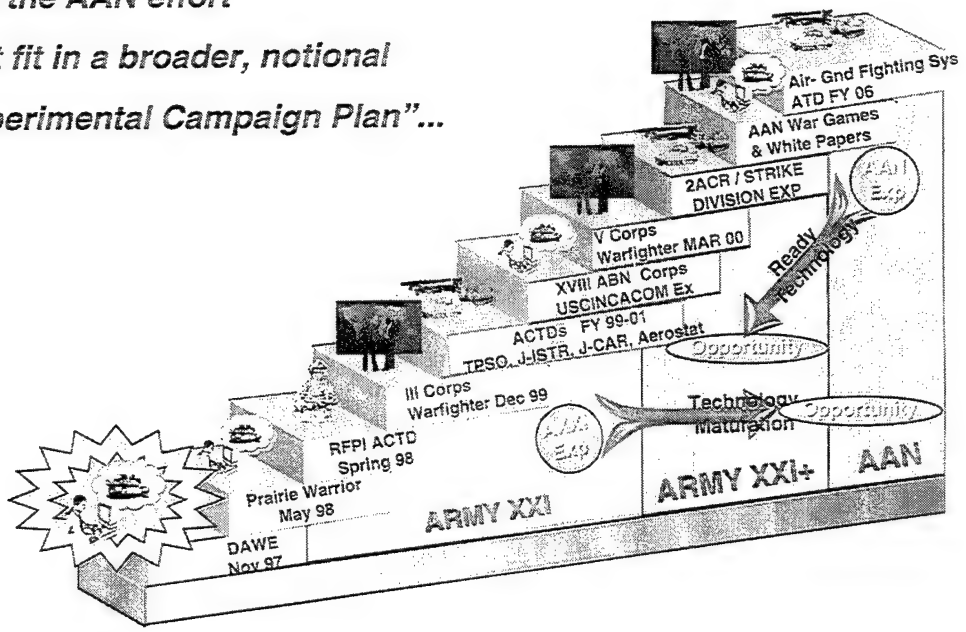
EXPANDING THE PARTNERSHIP



Franchises are AAN organizational partners who have agreed to conduct analytical excursions to further develop specific issue areas as feeds to the AAN wargame process.

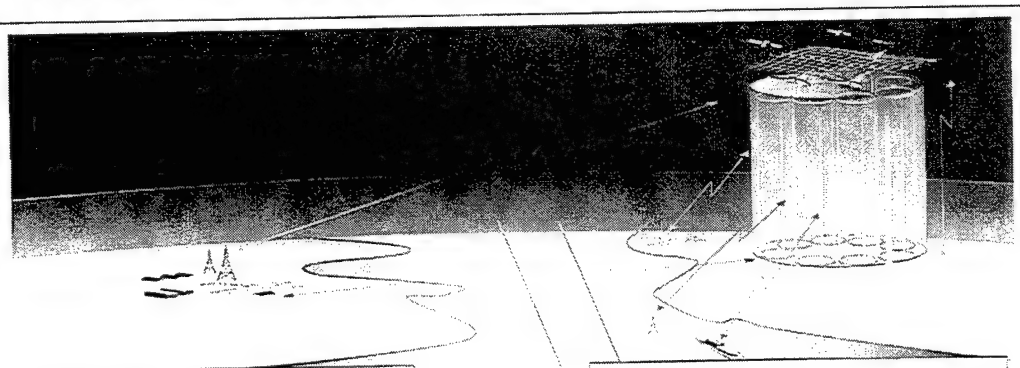
Contribution

Where the AAN effort might fit in a broader, notional "Experimental Campaign Plan"...



5

HUMAN AND ORGANIZATIONAL CHARACTERISTICS OF AAN (2025)



SUPPORT: Focus on Efficiency

Organizational imperatives and processes drawn from civilian/industrial sector

- Flat organizations
- Decentralized management
- Low leader-to-led ratio
- Direct producer-to-user distribution
- Relatively protected
- Individual specialization
- Heavily civilianized/contracted force
- Increased lateral entry

COMBAT: Focus on Effectiveness

Unique military organizations focused on extreme effectiveness and lethality

- High leader-to-led ratio
- Highly trained, multi-skilled soldiers
- Psychological hardening
- Accent on maturity and cohesion
- Long service, low turnover of personnel
- High tooth-to-tail ratio in deployed forces
- Systems designed to limits of human cognition
- Mastery of information

Requires revolutionary change to traditional personnel and management approaches

CSA GUIDANCE

Define what we want in the Army After Next so that . . .

- **Force XXI expands to link Army XXI and Army After Next**
- **Force XXI does not get disjointed from long term vision**
- **Also, we must**
  - Focus our R&D efforts
    - Narrow the gap between heavy and light forces
    - Improve mobility, enhance firepower
  - Leverage the work already done in OSD's RMA studies
  - Identify organizational concepts that better integrate AC & RC
  - Revolutionize logistical concepts . . . continue developing total asset visibility & velocity management
  - Institutionalize AAN concepts & process
  - Think joint and involve other services in AAN process

Army Science & Technology Highlights

ADVANCED PLANNING BRIEFING FOR INDUSTRY
U.S. ARMY AVIATION AND MISSILE COMMAND
REDSTONE ARSENAL, AL
October 21, 1997

Dr. A. Michael Andrews
Director for Technology
Office of the Deputy Assistant Secretary of the Army
for Research, Development and Acquisition

Topics

- S&T Strategy, Planning, & Processes
- Implementation Approaches -- STOs, ATDs, ACTDs, Fast Tracks
- Army After Next -- S&T Planning
- Summary

Continuing Need for Military Technology

COLD WAR IS OVER:

- We no longer have a near-term peer competitor in technology development or military investment

BUT:

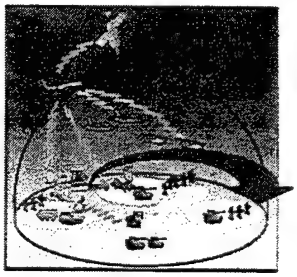
- We no longer can predict where we will fight
  - Force projection is now necessary with tailored forces
- We are more adverse to casualties in regional conflicts
  - Technology overmatch must be maintained
- Relevant technology is more available worldwide
  - High tech asymmetric threats likely

Continued Investment Needed to Maintain Technology Overmatch

sing1.ppt

S&T is the Foundation of Modernization

- S&T needs to be maintained even with reduced Modernization Budgets.
- Significant tech insertion into existing platforms is essential even if new platforms are not now affordable (new C3, new sensors, new weapons)
- S&T forms the bridge to the future when new platforms will of necessity be built
  - R&D capability cannot be reconstituted quickly
  - Industry is withdrawing from long term investments
- S&T provides hedge against unanticipated threats



Robust S&T is needed to support modernization strategy, maintain overmatch and bring AAN to fruition.

sing2.ppt

Army Science and Technology Vision

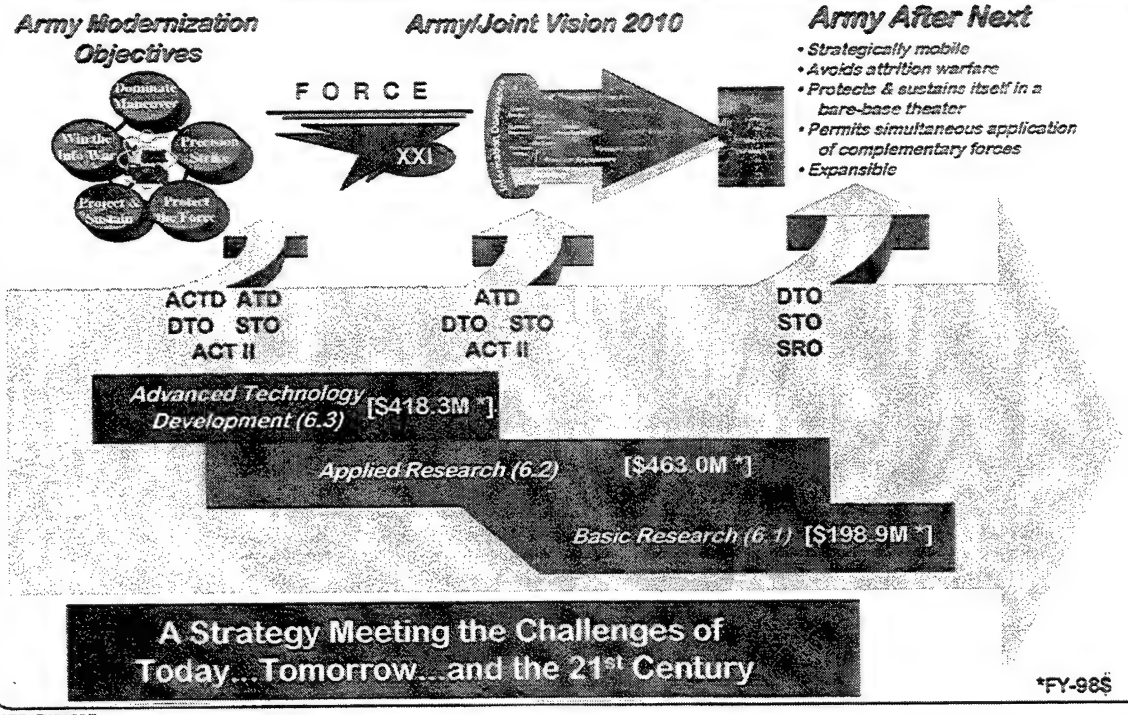
- Timely Demonstrations of Affordable Technology/ Weapon System Concepts That Enable:
  - Decisive Overmatch with Minimum Casualties
  - Force Projection with Full Spectrum Capability
  - Requirements Definition/Prioritization through Experimentation

- S&T That Reduces Cost Through:
  - Early Retirement of Risk in Materiel Development Programs
  - Support for Acquisition Reform
- World Class Network of Army Focused Government and Private S&T
  - Maintain Land Warfare Superiority
  - Leverage Commercial Information Technology
  - Maintain Smart Buyer Capability

Revolutionary Warfare at a Reasonable Price

STVISNEW.PPT 10/15/97

S&T Investment Strategy

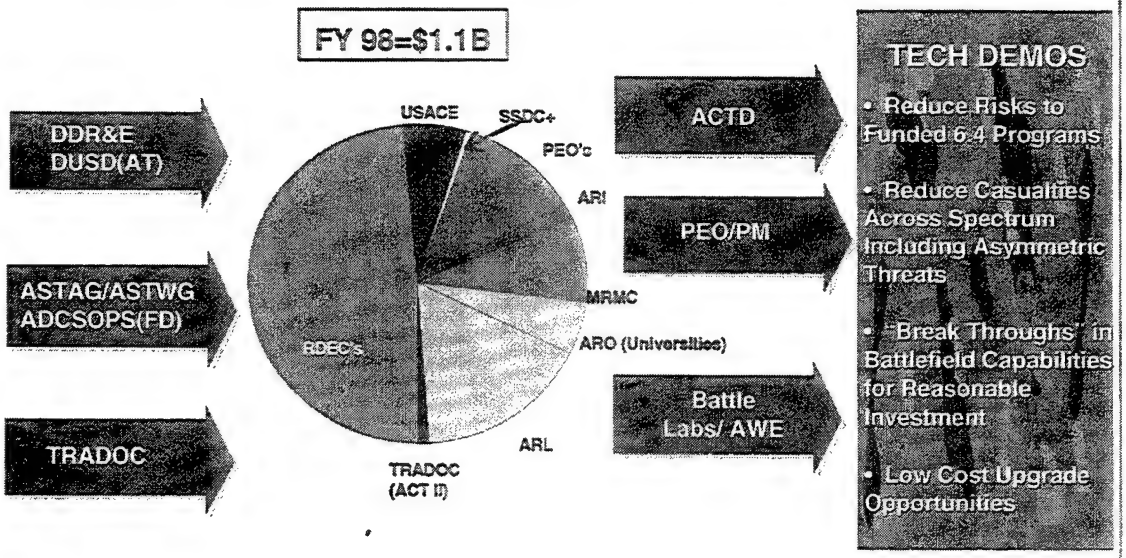


A Strategy Meeting the Challenges of Today...Tomorrow...and the 21st Century

*FY-98$

STRATINV.PPT

The S&T Enterprise



S&T Provides the Foundation for Future Land Warfare

Army S&T Investment Focus

Then (~1990)	• Now
• Independent Efforts	◦ Tight Coupling to Transition Opportunities – Upgrades – Fast Track to Reduce Cost and Time
◦ Competing Contractors ◦ Broad-Based Technologies	◦ Mostly Single Contractors ◦ Selective Technologies – Reliance on Industry, Other Services, and DARPA
◦ New Systems & Next Generation Systems	◦ Generation-After-Next Systems – Rapid Technology Innovation Drives Experimentation – ATDs & System-of-Systems ACTDs

Science and Technology Objectives (STOs)

- Major Technology Advance
  - Specific, measurable
  - Achieved by a specific fiscal year
  - Funded in the POM
  - Limited to 200 total STO's
- Reviewed Annually by MATDEVs and TRADOC
- Approved by Army Science and Technology Working Group (ASTWG)
- Provide input to DoD DTO process

STO's Focus and Stabilize Programs

stoo_101.ppt

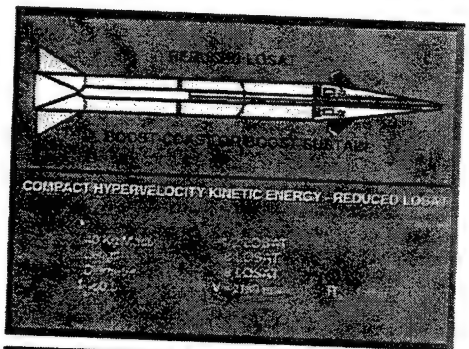
Compact Kinetic Energy Missile Technology

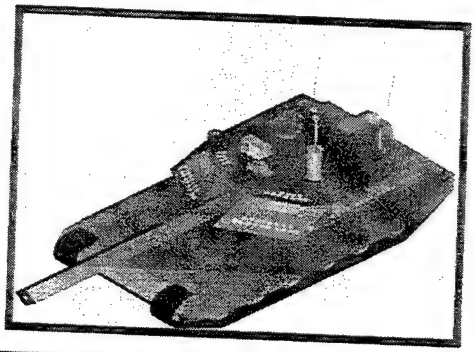
Project Objective: Demonstrate small, light weight kinetic energy missile technology to defeat future tank armor and active protection systems for advanced tank threats.

High Lethality in a small package

An Approach to Lightweight Tank

Provides lethality overmatch option for Future Combat System





Critical To Maintaining Lethal Advantage Over Future Armored Threats

ke_miss.ppt

Advanced Technology Demonstrations (ATDs)

- Large-scale technology demonstration
- User involvement in all phases
- TRADOC approved exit criteria
- Testing in real or synthetic operational environment
- At least one demonstration at Battle Lab
- Fully funded in POM
- Approved by Army Science and Technology Working Group (ASTWG)

ATD's Reduce Risk Prior to Full-Scale System Development

atdc_101.ppt

Advanced Technology Demonstration (ATD)

Definition: **Risk reducing, integrated proof-of-principle demonstration of advanced technology in an operational environment to assist near-term system developments in satisfying specific operational capability needs for Army modernization.**

ATD Support to Army Modernization Objectives

Protect the Force

• Battlefield Combat Identification	(FY93-98)
• Objective Individual Combat Weapon	(FY95-99)
• Vehicle Mounted Mine Detector	(FY95-97)
• Multispectral Countermeasures	(FY97-99)
• Mine Hunter/Killer	(FY98-01)
• Integrated Biodetection*	(FY96-99)

Dominate Maneuver

• Hit Avoidance	(FY95-97)
• Target Acquisition	(FY95-98)
• Composite Armored Vehicle	(FY94-98)
• Intelligent Minefield	(FY93-97)
• Precision Guided Mortar Munitio n	(FY94-99)
• Direct Fire Lethality	(FY96-00)
• Hunter Sensor Suite	(FY94-97)
• Rotorcraft Pilots'Associate*	(FY93-99)
• Air/Land Enhanced Recon & Tgtng	(FY97-00)
• Future Scout and Cav Vehicle	(FY98-01)
• Multifunction Staring Sensor Suite	(FY98-01)

Project & Sustain

• Total Distribution	(FY94-97)

Precision Strike

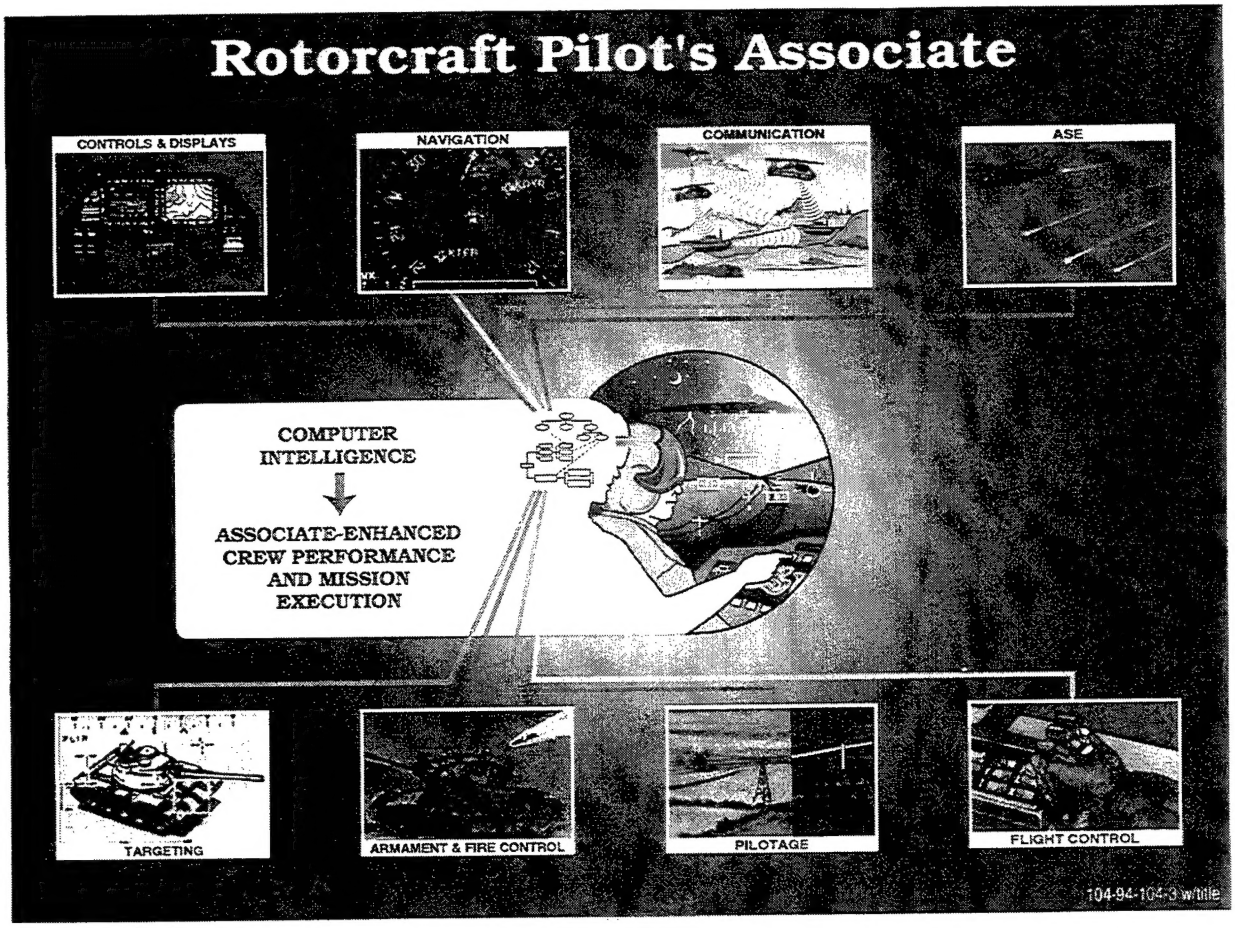
• Guided MLRS	(FY95-98)
• Indirect Precision Fire	(FY98-01)
• Enhanced FOG-M*	(FY94-99)

Win Information War

• Digital Battlefield Communications	(FY95-99)
• Battlespace Command and Control	(FY97-00)

23 Total ATDs

ATDnew.PPT



ATD & ACTD Demonstration Objectives

ATD
Advanced Technology Demonstration

- Evaluate Technical Performance.

Objectives

- Demonstrate technical feasibility and maturity.
- Reduce technical risks and uncertainty at the relatively low cost of informal processes.

ACTD
Advanced Concept Technology Demonstration

- Evaluate Military Value (large scale experiment).

Objectives

- Gain understanding of and evaluate military utility before committing to acquisition
- Develop corresponding concepts of operations and doctrine.
- Rapidly provide operational capability fieldable prototypes (Residual).

Advanced Concept Technology Demonstrations - Army

FORCE

- CINC Sponsored
- DoD Funding Support

Near Term Contribution to Warfighting Capabilities

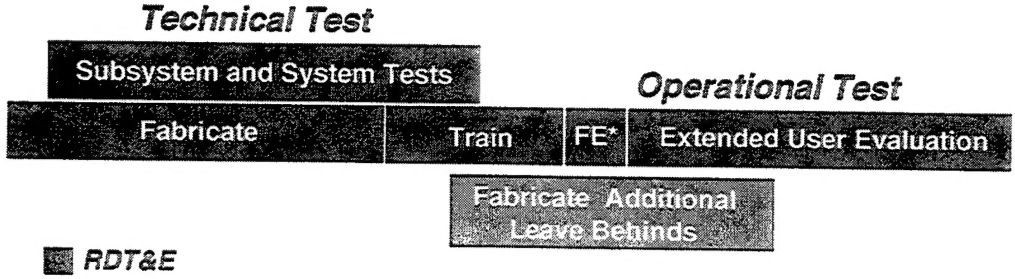
SYSTEM OF SYSTEMS/ PRODUCTS	WARFIGHTER
- Rapid Force Projection Initiative	XVIII ABN CORPS
- Rapid Terrain Visualization	XVIII ABN CORPS
- Joint Combat Identification	ACOM
- Joint Precision Strike Counter MRL	US Forces Korea
- Joint Countermine	ACOM
- Joint Logistics	ACOM, CENTCOM, EUCOM
- MOUT	SOCOM
- THEL	Israeli Ministry of Defense
- *LOSAT (Proposed)*	XVIII ABN CORPS
- *TPSO (Proposed)*	US Forces Korea
- *C4I for Coalition Warfare (Proposed)*	EUCOM

- Mission/Capability Oriented
- Integrate Multiple ATDs/ RDECs
- Battle Lab Partner
- Technology & Tactics Together
- Simulation & Field Tests Evaluate Military Worth
- Use Connectivity and Information Technology
- Robust Residuals (Fieldable Prototypes) provided for 2 Years

Providing Warfighting Capability Directly to CINC

10/12/98

Typical ACTD Schedule for Residuals/Leave Behinds



*Field Experiment

With Few Exceptions, All Residuals Are Used in Field Experiment and Extended User Evaluation

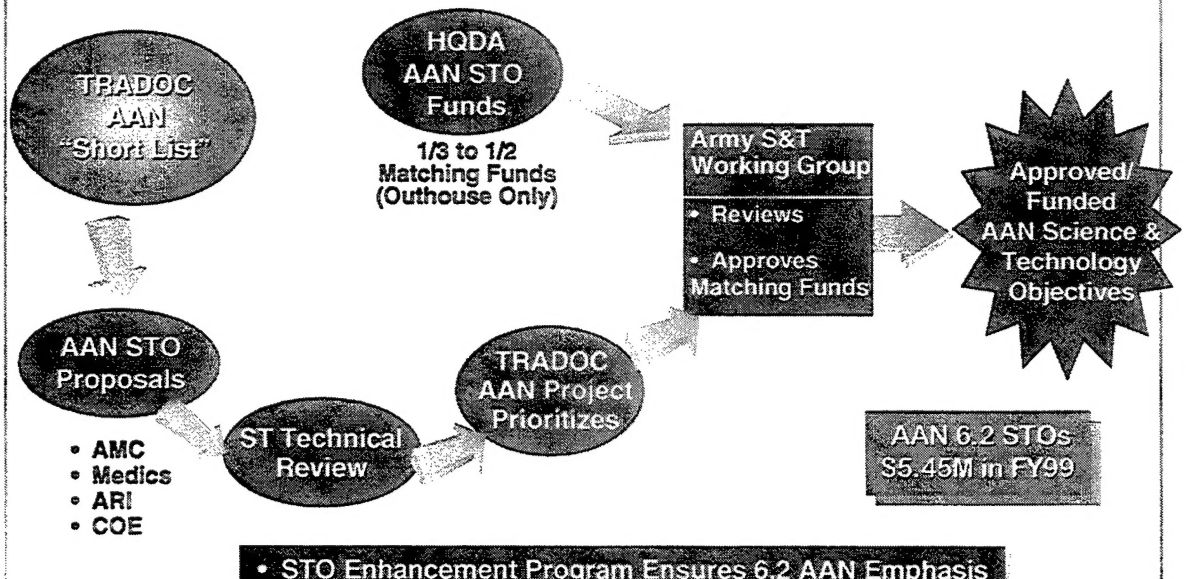
Developing the S&T Investment Strategy for AAN

- S&T community supporting AAN process
- Most ongoing 6.1 and 6.2 efforts relevant
- Expect to realign 6.1 (~30%) and early part of 6.2 accounts (~15%)

- Developing new Strategic Research Objectives for 6.1
- Developing Short List of enabling technologies for 6.2 - Areas for *increased* emphasis
- Concentrate on affordable technical approaches

Technology focus on Army-unique long term challenges

6.2 AAN Science & Technology Objectives (STOs)



- STO Enhancement Program Ensures 6.2 AAN Emphasis
- Provides TRADOC AAN role as prioritizer
- Ensures Industry Participation in AAN Efforts

SUMMARY

- Army S&T Program is Focused on the Warfighter
- Demonstrations Evaluate Military Value of New Technologies and Corresponding Concept of Operations
- Strong Emphasis on ACTD Approach Assures Rapid Transition of New Capabilities into the Hands of the Warfighter
- S&T Investment Enables Technology Evolution to AAN and Maintains Battlefield Superiority